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The Textile Outlook.

In this number of the Manufacturers' Record are presented a list of Southern cotton mills, expressions of opinions about the future of textile industry from representative millmen, a broad view of the market by Col. A. B. Shepperson and other special features of interest to the textile world. As a whole, the articles set forth the situation in conservative light, and there is a general tone of hope in them. One of the most encouraging facts, perhaps, is the hearty reception given to the idea of a great textile school in North Carolina, indicating a belief in the future and a desire to be prepared to seize all of its opportunities. In view of the encouraging outlook for textiles in the South thus given it may not be amiss to repeat a few "dons't" suggested by the Manufacturers' Record two years ago as follows:

Don't attempt to start a cotton mill with insufficient capital.

Don't imagine that because of the South's advantages cotton mills are bound to pay anyway, and hence good management is not absolutely essential.

Don't imagine that every place is just suited for a cotton mill, and that every man can run a mill successfully.

Don't fail to secure the best technical advice as to the advantages of your town, and the character of mill best suited to it, before arranging to build.

To these may be added a couple of "dons'ts":

Give hearty support to every legitimate movement for increasing the technical knowledge of the South.

Encourage every measure designed to widen the field of commerce.

The Milk in the Cocoanut.

The Textile World, of Boston, is to be congratulated upon its candor. In explanation of the talk about competition of Southern mills it says:

One of two things will have to be done, either the hours of labor in Massachusetts will have to be extended, or the wages of operatives will have to be reduced. The latter is the more probable. Southern competition with Massachusetts mills is more detrimental than any foreign competition on the lower grades of goods.

Problems of Labor.

In some cotton-mill neighborhoods of New England there has recently developed an amount of philanthropic agitation about the status of Southern operatives that is touching in the extreme. Hardly a week passes without the publication of editorials or communications, more or less inaccurate, demanding vigorous action in the matter, the height of audacity being reached in a proposition that the Southerners be permitted to enjoy the advantages of a national labor law. There has been no particular demand for such legislation on the part of the Southerners. They seem to be fairly well satisfied with existing conditions. They learned a valuable lesson in alleged co-operation from the experience of West Virginia miners during the late strike in the coalfields, but a few may, perhaps, be curious to examine the latest movement. A few extracts reveal its inspiration. Says the Boston Transcript:

Southern competition has made it obligatory upon the manufacturers here to accept prices for these goods which, admittedly, do not allow of any profit. Whether the reduction of wages by the Fall River mills will have the effect of bringing the cost of production to a point that will enable them to sell the goods to advantage remains to be seen. It is not likely that a cut will be submitted to without a protest of some kind on the part of the operatives, but if Fall River is to continue making the class of goods for which its mills are equipped, it would seem as though there was no choice left for the manufacturers there. It is their misfortune and the misfortune of their operatives that such degrading and demoralizing wages prevail in the Southern mills. To say that their operatives are not as proficient or as steady workers does not disprove the fact that Southern mills have declared fair-sized dividends, while Massachusetts plants, making the same goods, have scarcely held their own. The peculiarity of the economic situation is that the people in one section are willing to work for a fraction of the wages demanded by those of another section of the same country—a condition of things that does not exist, for instance, in England, our competitor in the foreign market.

A correspondent of the same paper writes:

The hope of the North now lies in the elevation of Southern labor to the plane which all intelligent and self-respecting labor should occupy—when the requirements of the body and the mind shall impel the recognition of its claims to a recompense for their work to be performed within reasonable limits of time. Massachusetts has led the way in this last particular, much to the detriment of her manufacturers, though the working classes have been the gainers. Adjacent States, less solicitous of the welfare of their workers, have refrained from passing such legislations as are upon our own statute-books, and, as a consequence, their manufacturers are beating us, not only in other lines, but in the very matter of print cloths, the Rhode Island mills often under-selling the Fall River makers in their own specialty, hampered as they are with the 58-hour law, overtime rules, etc.

Supplementary to this is the suggestion of the Springfield Republican:

Is not the alleged handicap of the 58-hour law somewhat exaggerated? Rhode Island and New Hampshire and adjoining States are not so troubled, but they are having about as hard a time apparently to keep afloat as Massachusetts.

It is not surprising, in view of such bold attempts to place Southern labor's elevation upon grounds of philanthropy, that operatives of New England are beginning to ask questions about Southern competition. On this point the Fall River correspondent of Textile America says:

There has been some talk in the labor unions this week concerning the accuracy of the reports from the South dealing particularly with the cost of labor in the mills there. As a result, some of the leaders have expressed a desire to go through the Southern manufacturing communities and see for themselves what the working conditions are and see if the differences in labor cost are as great as they have been represented by the manufacturers and the newspapers. They would like very much to have the mills pay the expenses of their trips, and in return they believe they can benefit them by advising the help of the true state of things with relation to the competition met by the mills because of their Southern competitors. The few manufacturers who have spoken of the matter say they think it is the duty of the labor leaders to keep themselves posted on the conditions of their trade elsewhere, just as the manufacturers have to. While they would like to have some of the leaders go South, they feel that it is for the interests of the unions quite as much as it is for the manufacturers to send them, and they would like to see the unions take the initiative. A year or more ago Secretary Howard, of the Spinners' Union, went South and organized a union, but the work has not been followed up very closely. Secretary Howard has practically severed all connections with the union here, and for the moment there is no one anxious to seek public assistance in carrying the wage war into the Southern mill centres.

"Carrying the wage war into Southern mill centres" is a suggestive phrase—suggestive to Northern operatives as well as to Southern ones. The present position of the owners might lead the uninformed to imagine that the magnificent legislation on the subject of labor in Massachusetts was due entirely to the love for their employees on the part of the millmen. If that were the case, what an ungrateful lot the operatives of forty years ago must have been to strike for fewer hours, or against lower wages, and to compel their employers to introduce foreign elements into the mills!

But is the legislation magnificent? What good is such legislation if within a brief period after its enactment the operatives find themselves facing another crisis? The Fall River News says that prominent members of labor unions have come to the conclusion that the question of Southern competition must be threshed out. It has been threshed out. Forty years ago it was employed to quiet Northern labor, and it is but a repetition of an old tale, as frazzled as any scarecrow in a cornfield. The secret of existing conditions may be revealed in the fact that, as the South is to New England, so is the South and New England to England, as far as textiles are concerned. There is a progression of natural law. It may be checked by legislation, but only to be continued later with greater impetus.

To the operatives of the South the Manufacturers' Record would say: Beware of appeals for co-operation

in labor organizations coming from outside sources. To the operatives of New England of an investigating turn of mind we would suggest: Inquire whether this demand for a national labor law or this talk of Southern competition is not intended solely for home consumption. Is any modification of the Massachusetts laws contemplated for the benefit of the millowners? Have the concessions to labor in Massachusetts come from philanthropy or from helpless self-interest? Is there such a wide actual difference between the North and South in wages for the same class of work, when the purchasing power of the wages is considered? To the New England millmen we say: There are still opportunities for you in the South which has advantages never to be enjoyed by New England, whatever legislation may be attempted.

Everybody should remember that cotton cannot be grown in New England. In that is the sum of the whole matter ultimately.

Telling of the South.

In a recent issue the Manufacturers' Record published a description of the fine plant of the Advance Gin & Mill Co. at Vicksburg, Miss. Since then we have received a letter from that company, in which it says:

We were indeed gratified to find that a great industrial paper, published in a far-off metropolitan city, had taken notice of our establishment, and that without solicitation or pecuniary compensation from us.

Would that our home papers would emulate your noble example and drop a few articles on politics for articles on their home industries, surroundings and natural advantages, and then this glorious Southern country would soon catch up and lead the pace to the remainder of the States.

It is the desire of the Manufacturers' Record to do for every enterprise in the South, however small or however large it may be, just what it did for this company—that is, print the news about what it is doing. We believe that in this way the Manufacturers' Record is making known to the world what this section is doing for its own development, that it is encouraging a spirit of industrial life and interest as against the ceaseless political activity that prevails wherever industry and activity do not absorb the people's attention. Our experience shows that the busy, hustling communities pay far less attention to politics than the thrifless, non-progressive towns. When men are busy at work developing their own interests and joining forces with their neighbors in building up their town or county, they have but little time for small politics. The Manufacturers' Record rejoices that there are many papers in the South that are following the suggestion of this Vicksburg company in dropping political for industrial discussions, and it hopes soon to see every paper in the South busy week after week in telling the world of the business and industrial possibilities and progress of its community.

The Acreage Conventions.

The Cotton Growers' Association is to meet next Tuesday at Atlanta. One week later the American Cotton Growers' Protective Association is to meet at Memphis. Both meetings are intended to devise means for the reduction of the cotton acreage next year so as to ensure higher prices for the staple. The permanent improvement of the condition of the cotton planter is greatly to be desired. But experience does not teach that he will have much relief through conventions. If a body could be assembled truly representative of every cotton grower, and with power to enforce its resolutions, it might result in a systematic and profitable regulation of the crop, provided, however, that weather and pests could be likewise regulated and other countries be prevented from competing with the South as producers of the staple.

But in the nature of things this is an impossibility. As long as one man will plant a big crop because he believes his neighbor will have a short one, and as long as an increase of prices in one year will lead to enlarged acreage the next, the regulation of the price of cotton must depend largely upon the individual. If he is wise he will seek to reduce the cost of producing his crop, by raising everything he may need upon his plantation. Wherever conventions of the past have tended to place cotton in the position of a surplus crop by encouraging men to live at home they have been valuable, and should the coming gatherings take as their text "An increased acreage in foodstuffs," instead of "A decreased cotton acreage," and should they persuade all Southerners to stick to the text, their labor will not have been in vain.

New Orleans Encouraged.

In a recent visit to New Orleans Mr. J. T. Harahan, general manager of the Illinois Central Railroad, gave an encouraging impulse to the local commercial energies by his philosophic view of the situation and his hopeful attitude toward the future. The work of building the new wharf addition and the sheds at the Stuyvesant docks is about completed. The wharf, capable of accommodating nine vessels at once, is 2000 feet long, and its new section was begun in spite of the presence of fever. It is also shown that the grain receipts for two and a-half months ended November 15 at the Illinois Central Railroad elevator are 4,250,000 bushels in excess of those of the same period last year. The railroad is constructing 2000 new freight cars to meet the demand of the next few months. Some of these facts were adduced by Mr. Harahan to demonstrate the increasing business into the port, and he said that his road had need of more terminal facilities, wharves, elevators, etc., and would have them.

These facts are elaborated in an interview with Mr. Stuyvesant Fish, president of the railroad. He said:

The Illinois Central is doing all the business that it possibly can. Our tonnage is limited by the capacity of the road to carry it. The South in particular is showing a big revival in business. We have only recently decided to purchase 2000 freight cars, 1500 box cars and 500 coal cars, as well as 35,000 tons of steel rails for next year's supply. There has been a big crop of cotton held back by the yellow fever which is now being moved very freely. Indeed, the cotton receipts at the port of New Orleans sometimes run over 40,000 bales in a single day. Quarantine restrictions have been re-

moved, and cotton is coming in with a rush, as it were. Our recent lease of the Chicago & Texas Railroad is proving a good investment.

The work being done in New Orleans by the Illinois Central is one of the great influences in that city's development commercially. It should be carefully noted by those persons who are prone to indulge in captious criticism of railroads. For the experience of New Orleans in this respect has many duplications in one degree and another in the South, and they furnish an excellent illustration of the advantages which may be derived by a community from the efforts of railroads to render the investments in them as profitable as possible.

The Terrible Millionaire.

Persons who are opposed to millionaires on general principles have, in the plans of Mr. P. A. B. Widener, of Philadelphia, an illustration of the disadvantages in having such individuals in the community. Mr. Widener is a wealthy man. Much of his wealth has a corporate form. And as if that were not bad enough, he actually proposes to present to the city property aggregating \$1,000,000 in value. The gifts include his dwelling, equipped for free library purposes, and an art collection valued at \$400,000. In addition to this, Mr. Widener has united with William L. Elkins, Edwin H. Fitler and Daniel Baugh in a gift of \$120,000 for a museum of science and art.

These gifts are in accordance with an idea that the greatest good would be done to the community in the development of a system of popular education based upon a free library, a free art gallery and a free museum.

The anti-millionaire must sympathize with Philadelphia in being thus victimized by corporate wealth, but the average citizen will undoubtedly encourage the growth of wealth if it is to have similar results.

Advertising That Pays.

The following letter to the Manufacturers' Record is self-explanatory:

Fred W. Wolf Company,
Mechanical Engineers and Architects,
Chicago, Ill., November 29.
Manufacturers' Record Publishing Co., Baltimore, Md.:

Gentlemen—It affords us great pleasure to inform you of the growth of our business throughout the Southern States during the past few months, and we feel assured that the Manufacturers' Record has done us a great deal of good. Thanking you for your kind attention in the past, we are,

Yours very truly,
THE FRED W. WOLF CO.,
Per J. S. Louis.

New Market for Birmingham.

Wm. J. Helming, Rio Janeiro, Brazil, has recently been in Birmingham with a view of promoting trade between the Birmingham district and South America. According to Mr. Helming's statement, Brazil is purchasing a large quantity of machinery and other supplies from the United States, and many contracts could be secured by Southern manufacturers. The materials which are being shipped to Brazil include locomotives and cars, also railroad track, as well as iron pipe and equipment for coal and iron mines.

The Florida Times-Union and Citizen is preparing to issue special editions setting forth the advantages of the several sections of Florida.

THE COTTON SITUATION.**Views of Col. A. B. Shepperson, the Well-Known Expert, of New York.**

At the beginning of the new cotton season on September 1 the visible supply of cotton in the markets of the world was less than at any time since September, 1889. It was 272,000 bales less than at the corresponding time in 1896; 1,335,000 bales less than in 1895; 953,000 bales less than in 1894; 1,152,000 bales less than in 1893, and 1,512,000 less than in 1892.

During last season it is estimated that there was an increase of 970,000 spindles in Europe and 500,000 in the United States, and an increase in consumption over the previous season of 156,000 bales (of 500 pounds net) by the mills of Europe and 247,000 bales by the mills of the United States.

The stocks of cotton at European and American mills on September 1 were considerably less than for several years. The statistical position was, therefore, unusually strong, and yet cotton has steadily declined since the opening of the season until on November 15 middling upland cotton reached 5 13-16 cents per pound in New York, being within one-quarter of a cent of the lowest price touched during the great depression in the season of 1894-95, when prices were lower than at any time since 1848.

Though considerably more cotton was spun by the European and American mills than the previous season, their business was not as satisfactory, owing to varying causes, all of them, however, of a temporary nature. Famine and pestilence in India, poor crops of grain in Europe and Argentina causing dearer prices in Europe for food, and the uncertainty in reference to the future policy of this country in regard to its money standard, were the influences which checked the purchase of goods nearly everywhere, and thus caused the production of the mills to be beyond the requirements of the world, though cotton goods were never so low.

All through this summer and fall extravagantly large estimates of the size of the American crop were circulated, and undue credence was given to them by the eagerness with which many cotton dealers in the South persistently offered large quantities of cotton in Northern and European markets at constantly declining prices.

With the Manufacturers.

For the new season there is a more encouraging outlook for the manufacturers. Prices are so low that it would seem that any change must be for the better. The pestilence and famine in India are over, and the business of British mills will, of course, be benefited by the improved conditions. The present disagreement between English mill-owners and operatives as to wages will probably be satisfactorily adjusted. The unsatisfactory demand for goods on the Continent, which was largely due to the higher prices of food on account of poor crops, will give place to a good demand when more abundant crops reduce the cost of living.

During last season there was in this country a great disturbance of all business by the important issues of the presidential campaign and the uncertainty in regard to tariff legislation. These issues have now been settled, and there is general hopefulness of improvement in every kind of business. Our grain crops have been good, and have brought full prices. Fewer people than usual are out of employment, and it is evident that the pur-

chasing power of our population is much greater than last season. There should, therefore, be a larger demand for cotton manufactures, leading to a considerably increased consumption of cotton by our mills. American mills may easily consume 200,000 bales more than last season, when we consider that under all the discouraging features of that season there was an increase of 247,000 bales (of 500 pounds net) over the previous year.

My friend, Mr. Thomas Ellison, of Liverpool, who gives more careful attention than anyone to the matter of the consumption of cotton in Europe, thinks that the European mills will consume this season 104,000 bales (of 500 pounds net) more than last season.

The stocks of cotton at European and American mills on September 1 were considerably less than for several years. The statistical position was, therefore, unusually strong, and yet cotton has steadily declined since the opening of the season until on November 15 middling upland cotton reached 5 13-16 cents per pound in New York, being within one-quarter of a cent of the lowest price touched during the great depression in the season of 1894-95, when prices were lower than at any time since 1848.

The last cotton crop of India was 3,046,000 bales. More land has been devoted to food crops and less to cotton this season, so that the new crop, under the most favorable conditions, will probably not exceed 3,000,000 bales. In consequence of the pestilence, the Bombay mills consumed last season 147,000 bales of cotton less than the previous season. It is probable, therefore, that the home consumption of cotton in India this season will be at least 150,000 bales more than last season's figures of 1,714,000 bales. India exported 433,000 bales of cotton to Japan and China last season, being 89,000 bales more than the previous year. As cotton manufacturing is steadily increasing in Japan and China, it is likely that India's exports to these countries this season will be 500,000 to 525,000 bales. It looks, therefore, as if 1,864,000 bales of the Indian crop will be consumed in India and at least 500,000 bales sent to Japan and China, leaving only about 600,000 for export to Europe, against shipments to Europe last season of 299,000 bales. To partly offset the diminished exports of cotton from India to Europe, the Egyptian crop promises to be about 30,000 bales more than last season.

About 9,000,000 bales of American cotton were actually consumed last season, and if the ideas of probable consumption and supply which I have presented are correct, the spinners of the world will need for actual consumption during the present season about 9,625,000 bales of American cotton in order that the stocks of cotton in the markets and mills may be no less at the close of the season than at its commencement.

A Question of Surplus.

Sufficient is known of the American cotton crop now being marketed to make it perfectly evident that it will be more than sufficient for the world's consumption during the present season. The only question is how much of a surplus will be carried into the next season.

The acreage is the largest ever planted. The Department of Agriculture estimates it at 3 1/2 per cent. more than its estimate of last season, thus making 24,320,000 acres. On November 12 the department estimated the yield as averaging 181.9 pounds of lint cotton per

acre. This yield upon the acreage stated would give a crop of 9,255,000 bales of 478 pounds net. The average yield per acre of the crop of 1896-97 was 178 pounds. The department's present estimate is, therefore, an increase of only 2½ per cent. over last season, while it reported the condition of the crop on October 1 as 10 per cent. better than last year (70 against 60), and everyone knows that the promise of the crop was much better on November 12 than October 1.

The acreage this season is probably nearer 7 per cent. increase over last season than 3½ per cent., and the yield will doubtless be nearer 196 pounds than 182 pounds per acre.

Calling the acreage 25,100,000 acres (or 7 per cent. more than last season) and the average yield 196 pounds per acre (or about 10 per cent. more than last season), would give a crop of 10,292,000 bales.

The crop was backward and planting in a large section of the Mississippi Valley was greatly delayed by serious and extensive overflows. The weather conditions for the season, however, have been fairly favorable, and since October 1 have been all that could be desired. Killing frosts averaged about two weeks later than in 1896, and fair top crops were secured in many sections where as late as October 5 little or no top crop was expected.

To the 3d inst. the quantity of cotton brought into sight was 4½ per cent. greater than to the corresponding date in 1894, and, should the movement of the crop hereafter bear the same proportion to that of the season of 1894-95, the present crop would be 10,254,000 bales.

The movement of the crop to this time seems quite consistent with the idea of a crop of about 10,300,000 bales, or over 1,000,000 bales more than would be indicated by the reports and estimates of the Department of Agriculture. Conclusions drawn from the October and December reports of the department in regard to the crop of 1896-97 would have been almost as misleading. Its October, 1896, report of condition, applied to its June estimate of acreage, indicated a crop about 900,000 bales less than the actual result, and its report of December 12, 1896, estimating the yield as 15.2 per cent. greater than the previous season, was still nearly 500,000 bales too low.

A Reduction May Come.

If American and foreign spinners should buy during the season only sufficient cotton for actual consumption in the season, there would be left from a crop of 10,300,000 bales a surplus of 675,000 bales, and the stocks in the world's markets would be that much larger at the end of the season than at its beginning.

I have investigated the matter probably as fully and fairly as anyone, and I am confident that, at present prices, not one cotton-grower in a thousand would realize the actual cost of production of his cotton. Unless prices advance very materially before the time for preparations for the new crop there must of necessity be a very large reduction in the acreage of the next cotton crop. As soon as an intended curtailment of acreage is evident the spinners will quickly buy up the 675,000 bales of indicated surplus and advance prices to a much higher plane. At anything like present prices they would as quickly absorb 1,000,000 bales of surplus cotton under the prospect of a reduced crop for next season, and such action would be extremely wise, for opportunities to buy large quantities of cotton at such low prices rarely come but once in a lifetime.

ALFRED B. SHEPPERSON.
New York, December 7, 1897.

IN SEARCH OF RAW MATERIAL.

Cotton as a Basis of the Industrial and Commercial Future of the South.

Cotton is the cheapest material for clothes of the greatest number of people. As long as clothes are worn cotton must be raised and manufactured. As long as cotton must be manufactured machinery must be made. Iron and coal are essential to the production of machinery. The nearer the raw material for any article is to the place of its manufacture the cheaper will the article tend to be when first placed on the market. People will trade most freely with that section where, everything else being equal, they may purchase the best goods at the least cost. To meet possible demands capital will be required in any manufacturing community. The result of this is the determination of the trade centre of any country or the part of any country. Money is non-sectional and non-partisan when the real interests of the owners of the money are involved. Consideration of these statements will explain why so much of the South's industrial and commercial future depends upon cotton.

A Glance Backward.

Capitalists of 300 years ago, taking advantage of the spirit of adventure—an inheritance of crusading days—made the settlement of Virginia by Englishmen a possibility. Gold, silver and precious stones were expected to be the reward of the investments. Dreams of gold gradually faded before the necessity for colonist to provide food for themselves. The "starving time" in the year 1610 in Virginia determined that the South was for two centuries to be an agricultural section and not a manufacturing one. With the fading of hopes of finding the precious minerals was lost for a time possible ambition of many to transform the unknown hidden baser minerals into wealth.

But from the beginning the South was a producer of raw material, one of the bases of industry. For many years in colonial times Virginia, which then was the South, as far as English enterprise was concerned, was the storehouse, the granary of New England, then representing the industrial North. To Old England it gave its staple, tobacco; later to the world, cotton. The industrial future of the South had begun.

A Useful King.

Cotton became so powerful, after a new nation had been born, as to gain the title of king. In its manufacture was laid the foundation of the varied industrial life of New England. The exports of the staple in the raw state were the cultivators of inward and outward-bound American commerce and internal trade. It dominated the agriculture of the South, at the same time retarding the growth of a commercial spirit in that section and being greatly influential in limiting its industries largely to the primary handling of raw materials. The United States, though, have proved that a king is not a necessity. But a king deprived of certain traits may become a valuable member of the community and an important factor in national life. So it is with cotton. The growth of other sections of the country under the benevolent reign of the king gradually diminished his prerogatives. War demonstrated that his culture in one part of the country was no longer absolutely essential to the development of another part. Coming down from his throne, cotton became a democratic sharer in the progress of the country and one of the most potent agencies

in changing the character of its section. Time was required for this. In fifteen years before the war the South had demonstrated its ability to compete with the North in the manufacture of the lower grades of cotton goods; its iron foundries and furnaces had assumed some importance, but its status industrially was revealed in the fact that it produced the greater proportion of home-made goods. It had yielded to the West as a grain grower, and the cotton field was deemed of more importance than the dairy or the vegetable garden, although in a few places had been made the beginnings of those methods of cultivation that is transforming the South into the vegetable garden of the country. Great railway systems were projected, the South leading in this particular as far as conception was concerned. Great steamship lines were mapped out connecting the Norfolk basin, Charleston, New Orleans and other ports with Europe and South America.

For fifteen years after the war the South was occupied, under tremendous difficulties, in adjusting itself to radically changed conditions. Within that period, however, began the thorough realization of the latent wealth of mine and forest in the South and a stronger development of the theory that contiguity of material and machinery was to become the surest basis for manufacturing. The few long-headed Southerners who had understood that had been previously at a disadvantage on account of the comparative lack of first-class transportation facilities, an item never to be omitted in calculating the cost of any manufactured article and the scarcity of capital. Another disadvantage was the difficulty of obtaining sufficient skilled labor, time being necessary to change the average plantation negro into a mechanic, and racial distinction and a caste feeling being somewhat prejudicial to the increase of native or transplanted white labor.

The fifteen years succeeding the war may, therefore, be considered, speaking generally, as the period of coal and iron mining, blast furnaces and a modicum of cotton manufacturing in the South.

A Generation of Marvels.

Marvels have been wrought since then. Outside capital joined to native capital and ability. Schemes that were dreams for half a century have become realities. Others have grown from them, and others still are to be devised. Weak and struggling railroad lines have been strengthened by consolidation, other lines have been built along routes almost identical with those planned before the war, and though the South has not all the transportation facilities that are required, their creation is but a matter of time, if the South is wise. The railroad has been largely responsible for the growth of industry in some places. One successful new manufacturing city, such as Roanoke, Va., the pioneer perhaps in the field, was an example for the planting of other new towns, such as Birmingham, and an inspiration for older cities, such as

Richmond, Norfolk, Atlanta and Nashville. In twenty years six cotton-producing States—Virginia, Tennessee, Georgia, Alabama, North Carolina and South Carolina—and one other Southern State—West Virginia—have become either distinct manufacturers, producers of other kinds of raw material, or both, while in other States the industrial spirit is abroad.

These growths have come without loss

of position for cotton. In fact, cotton is to do for the South what it did for New England in the first half of the century, and the conclusion will be that the South will have all the advantages once possessed by New England and much more. Viewed agriculturally the possibilities of Southern cotton are enormous. These were shown by Hon. Charles W. Dabney in an article in the "Southern States" magazine of last February. He said:

"Excluding from the cotton section Virginia, Kentucky, Kansas, Missouri, California, Arizona and New Mexico, in all of which cotton has been cultivated, and where a larger demand would cause its culture to spring up again, and excluding also all of Northwestern Texas, which is not adapted to its culture, the cotton-growing region of this country measures over 550,000 square miles, which was nearly one-third of the total settled area of the United States in 1890.

"Over 50 per cent. of the 550,000 square miles is in farms, and over 20 per cent. is improved. The interesting fact for our present consideration is that of the total area, only about 5 per cent., or one-tenth of the area in farms, and one-fourth of the area of the improved land, is annually cultivated in cotton. Since the present methods of cultivation require, roughly speaking, two and one-half acres to produce a 400-pound bale, the area now in farms in this section would, if all cultivated in cotton, produce over 80,000,000 bales. So far as climatic conditions and soil are concerned, therefore, there is no limit to the amount of cotton that can be produced by this country until the annual crop has become at least ten times what it is at present."

The crop has ranged on a general increase from 3,770,000 bales in 1874-75 to 8,758,000 bales in 1896-97, the largest crop having been 10,533,000 bales, in 1894-95. The South manufactured but 12 per cent. of its crop in 1896-97. It should manufacture its whole crop, and the extent of its textile possibilities is revealed in its capabilities for raising five times as much cotton as is necessary to clothe the world.

It is needless to say that that feat is an impossibility. Egypt, India, China and parts of South America have entered the field as growers. Some of those countries are increasing their strength as manufacturers. But none of them has the advantage, equal to the South's, of having an abundance of the staple and the material for the construction of textile machinery, side by side. The task of the South, then, in availing itself of its superb opportunities is, first, to encourage its manufactures, and, second, to extend its commerce.

The perplexing question of acreage of cotton will lose force as more cotton mills are built. Such construction will be hastened by the transfer to the South of the business of manufacturing textile machinery. Consequent upon this will be an increase in the number of kindred industries, the growth of towns, a closer population and the hastening of the development of the small farm. The South will be absolutely self-sustaining, and not the least element in its welfare will be foreign commerce and internal trade fed by the railroads.

With unrivaled natural resources, the cue to the first feature of the future of the South is given in the phrase—the full development of raw material at or near the place of production. Following this will be the conversion of the South into a basis of supply of manufactured articles, not only for its immediate use, but for that of the rest of the country and foreign nations. Time is righting difficulties. The extension of railway lines

is increasing more and more rapidly year by year, with a tendency towards the South taking the lead and holding it many years. The causes are the demands of the small farms and the desire of the manufacturers to have ready access to the new and abundant fields of raw material. The natural result is greater efficiency of plants already established upon a solid basis, the building of new and more diversified industries and the transfer of older industries from less favored portions of the country.

Occupation for more labor will be had in the transformation of hitherto waste material into articles of great commercial or industrial value and the incentives offered to invention will continually provide new bases for investment of capital, brains and muscle.

One very important fact must not be overlooked in considering the drift of in-

dustry Southward. Within ten years, if reasonable expectations are fulfilled, the Nicaragua canal, or some canal across the isthmus, will be completed. This will mean the opening of new Southern ports and an enhancement of the business of those already in existence. Certain railroad lines have pointed the way to that. For to the South will then belong the control of the trade of all the western coast of South America, Australia, Eastern Asia and the islands of the South Sea. The trade and financial centre of the country will be nearer than now to the wavering industrial Mason and Dixon's Line.

In the halving of a hemisphere the South, equipped for large conquests, will control that El Dorado in search of which the English first planted a firm foot in America on Southern soil. The honor will be cotton's.

FOR A SOUTHERN TEXTILE SCHOOL.

Energetic Efforts in That Direction in North Carolina.

In three Southern States a lively interest is manifested in the project of a textile school. The Georgia legislature is considering an appropriation of \$10,000 for the addition of such a feature to the State School of Technology. Authorities of Clemson College, South Carolina, are investigating the feasibility of a similar department. At Raleigh a committee of the alumni of the North Carolina College of Agriculture and Mechanic Arts, Messrs. Charles Pearson, chairman; C. B. Williams and C. D. Francks, have taken the subject in hand with systematic enthusiasm. Their efforts, well directed, have met with a co-operative response full of promise of success for their undertaking should they decide to attempt it.

Wisely arguing that a great industrial college should be built up under one management so that the most effective work might be done at least cost, and that people might get into the habit of looking to that place for men trained in all departments of industry, the committee addressed a circular-letter to the millmen of the State and to others to learn of the demand for a textile school, opinions of the value of a technically-educated man over another without such training, views about the founding, support and conduct of the school, and the extent of co-operation to be expected.

In response about fifty letters have been received. Though in one or two is a dissenting note, their authors generally admit the necessity for the school, and most of them favor its establishment by the State. Co-operation, some of it of a most practical kind, is promised. Among the reasons advanced why the school should be established are that the textile industries of North Carolina are sufficient to warrant it, that it would strengthen the colleges, that if home talent is to be retained it must be trained at home, that so many young men are crowding other avenues of work that any movement promising to open a new door will attract them, and that the manufacturers will be the indirect beneficiaries of a thorough training of young men in mill work.

Comparisons are drawn between the technically trained and others, and it is shown that the former understands the why and the wherefore of things and so avoids blunders and expensive mistakes, and can consequently serve his employer more advantageously and command high wages. The duty of the State in the premises is well announced in the sen-

tences: "It is not a question how such a school could be supported in North Carolina. The answer comes first. You cannot have such a school unless the State supports it."

The Manufacturers' Record has been fortunate enough to view a number of the letters, and representative extracts from them are herewith published:

A Broad Survey.

Letters from Prof. J. H. Kinealy, head of the mechanical department of Washington University, St. Louis, and formerly in a similar position at the Raleigh institution; Hal W. Ayer, auditor of North Carolina, and P. H. Pelletier, owner of the Clermont Mills, New Bern, N. C., present a general survey of the project. Professor Kinealy writes:

"I hope success will attend your efforts, and that the school will be put on a firm foundation. I am afraid a book would have to be written in order to fully answer your questions. However, I will try to give you one or two thoughts in regard to each.

"The South should do a large part of the spinning done in this country. Textile schools are in operation in Germany, are being established in England, and are established and are in operation in the New England States. If textile schools are necessary for these places, then one is necessary for North Carolina.

"The technically-educated man has a knowledge of principles which the other has not, and he is more ready to meet new problems. A technical education will not make a strong man out of a weak, inefficient man, but it will aid him. A strong man without a technical education will do a great deal, but with an education fitting him for his special work he will do a great deal more.

"The school should be established in connection with the North Carolina College of Agriculture and Mechanic Arts. It should be a part of the department of mechanical engineering. All of the mechanical work done at the college should be very closely connected with the mechanical department. Do not have too many departments. It should be supported by the State. I have not had time to give the matter very much thought, but it seems to me that two courses should be offered. The first should be a post graduate course of but six months or a year for students who have taken the mechanical course, and who desire to fit themselves to become mill superintendents and managers, or mill engineers. The second course should be a short

practical course for operatives, men who will attend to the machines and do the manual work in the mills."

Auditor Ayer formulates his reasons as follows:

"It is already admitted that mills and manufacturing establishments located at a distance from the home of or the section which produces the raw material cannot longer compete with mills and establishments located in the producing section in the production of coarser textiles. It is obvious that the reason why this competition has been nullified is the comparative recent acquirement of sufficient skill and knowledge by the operators of home mills to produce the coarser fabrics. What holds good now with reference to these coarser fabrics must eventually hold good with reference to the production of the finest textiles, and the time at which those mills located in the section producing the raw material can and will successfully compete with mills located elsewhere in the manufacture of fine goods will be largely governed by the knowledge of the manufacture and production applied to what may be called the home mills, or those mills located where the raw product is produced. This knowledge can only be applied after it is acquired; it can only be acquired by proper instruction and training. If there should never be any instruction or training offered in this section, it is probable that home manufactures would never try to compete with distant mills in the manufacture of fine goods, for it is more than probable that owners and operators in those mills which now produce fine goods would find no incentive to change their location if they never come in contact with competition. It seems clear, therefore, that the sooner a knowledge of the manufacture and production of the finer textiles is acquired by the people of this and other States producing the raw material, the quicker there will be such competition as must move the large producing mills of fine fabrics to this section, or result in the establishment of mills by home capital, talent and knowledge.

"As to the method of the establishment of a textile school, I am not prepared to offer a suggestion looking to its immediate inauguration. It seems to me, however, that even a small beginning would quickly lead to such encouragement from the people, and even from the State, as to insure its early establishment and success. It is certain that if the State legislature could be made to see this matter as it occurs to me, there would be no hesitation in the making of a sufficient appropriation to guarantee the almost immediate establishment of the school."

How the support will come is shown in the tail end of Mr. Pelletier's letter. He writes:

"We have felt the need of a man who is thoroughly conversant with the manufacture of hosiery in our mill—one who has an interest in our State at heart and is ready at all times to advance the interest of its people. There is a demand and a great one for bright young men who are conversant with the textile industry, as superintendents of manufacturing enterprises—men who have had technical education and understand the mode of manufacturing thoroughly is the man that is needed at the head of every textile factory in the State.

"We think a school should be established, supported and conducted under the State supervision, charging a nominal fee to those who are able to pay to enter and take this course. We feel that there are many young men in our State who could make great success in this line of business had they the proper advantages

in learning the business, and we know of no textile school in the South.

"They have one established in Philadelphia which is the centre of textile manufacturing and has worked to great advantage to the owners of the textile factories in that they get employees and operatives who are familiar with this work and hence are not a loss to the factory in learning them what to do. It is just as important to have a superintendent and foreman who is as thoroughly conversant with the various courses and grade of manufacture as it is to have a man who is thoroughly conversant in electricity to superintend and operate an electric plant upon a large scale. By the aid of a textile school intelligence with experience can be combined to make a success of this enterprise and cause the establishment of many such enterprises in our State that would give employment to the great middle class of our people who at this time think it beneath their dignity and station in life to work in plants of this character. It would increase the tax valuation in the State. It would raise and lift the poorer classes of people, making them earn an honest and sufficient living, thereby bringing contentment to this element that is now the thorn in the side of any and all steps of progress in our State, and would put our people upon that road to prosperity which would lead to contentment and satisfaction, raising both the mental and moral standard of our people.

"Establish the school, and put our application in for a superintendent who is thoroughly conversant with the manufacture of hosiery from start to finish, and we will give him a job as soon as the recommendation comes that he is competent and fitted for the position of superintendent of our mill."

The concluding paragraph has its complement in the words of Mr. H. F. Schenck, president of the Cleveland Cotton Mills, of Laundale, N. C., who writes:

"You can expect my hearty co-operation, and not only will I co-operate, but will patronize the school by sending all the grandsons I have that show any disposition for manufacturing to this school, provided the school will equip itself so as to thoroughly teach the youth of the country the art of textile manufacturing."

Technically Educated Men.

This hearty and intelligent reception which has been given the project has been repeated in other letters, extracts from which are herewith reproduced:

Mr. Hugh MacRae, president Wilmington Cotton Mills, Wilmington, N. C.:

"A good technical school would create its own demand. Each mill now has to teach its own men by the expensive method of permitting them to acquire practical experience, and while the demand may not seem to be urgent, it is because there is no way of supplying it. The technically educated man can readily secure practical experience, and does this quickly and at much less expense to himself and his employer than a man without special education. He has a broader field of vision, which enables him to correctly seek out and follow the lines in which progress can be made. He has more confidence in his ability to be successful, and much depends on this. In the case of the man without special education, if his education is very limited, he is almost out of the race, to begin with, and, even though he had a general education, his progress is necessarily slow and discouraging, because he has little opportunity outside of his regular work to secure the technical knowledge which eventually he must have, and he,

therefore, does not get the benefit of other people's experience. There is an old maxim to the effect that 'experience is a dear school, but fools learn in no other.' I feel that this is entirely wrong. My belief is that experience is the only school, and that no one learns except by experience, but the wisest people learn much by the experience of others."

G. E. Webb, secretary Winston Tobacco Fair Association, Winston, N. C.:

"The present demand for such an addition as you speak of establishing in connection with the North Carolina Agricultural College, in my opinion, does not require any argument. It is necessary if the college is to extend its work. The advantages of a technically educated man over one who is not are great. This fact has long been admitted among the mills of the North and Great Britain. The school should be established along the line that the college was put on foot; should receive aid from the State, and should specially receive encouragement from the mills of the State."

A Note of Caution.

Mr. Edwin Lehman Johnson, of Fort Hill, S. C., in a lengthy letter approaches the subject with extreme conservatism, but in excellent spirit and upon a basis of sound sense. With him it is a question rather of ability than necessity. He takes the ground that "it would be almost folly for any single Southern State to strain itself to establish a textile school when so much of its income and instruction is so badly needed to make agriculture more profitable by encouraging the manufacturing industries more nearly related to it (as 'the live fertilizer factory' certainly is) than cotton manufacture," and he says: "Whether we have a textile school in North Carolina or elsewhere in the South, I am heartily in favor of endowing immediately every one of our Southern A. and M. colleges with scholarships which will permit two or more of the most deserving graduates of each to go where they may perfect themselves in some line of manufacturing suited to the South, and be able on their return to go directly to work in such manufacture without any further apprenticeship. The United States government ought certainly to assist in carrying to a conclusion the good work it has begun by giving some help to this scholarship fund. Nothing, in my opinion, would do more to popularize the A. and M. colleges among the young men, and nothing would do more to fill them up (they are none of them running at one-half capacity) than the certainty of a good position for the best men who graduate from these colleges."

Demands of the South.

William H. Harriss, of the D. A. Tompkins Co., manufacturers, engineers, contractors, Charlotte, N. C.:

"Having myself taken the course in theoretical cotton-mill engineering at the A. and M. College, and later becoming connected with a firm of practical cotton-mill engineers, I think I am in a position to say that the effort to give training in the textile line will be of no practical value without the actual machines and the cotton mill in detail, the working and managing of which the students must be familiar. This again calls for the special department of technical education. I think the course at present given at the A. and M. College is the very best that could be suggested in connection with a textile school, and I believe that they should be both taught together. The fact that several other places in the South are going ahead with the textile-school movement should not compete with anything done towards establishing the school at

Raleigh, for I believe there is enough demand in several of the Southern States for each to support a textile school."

G. P. Ashe, assistant commissioner of labor for Tennessee, Nashville, Tenn.:

"I have not the slightest doubt that the establishment of such a school as you have in view would in a very short time, by improving the efficiency of textile workers, very materially raise the demand for such a school by increasing the demand of manufacturers for men who possess a technical knowledge of mill work. The acknowledged superiority of Eastern mechanics over those of the South is due almost entirely to the knowledge and training acquired in the technical schools of the East. The time has come in this country when it is absolutely necessary for a man to be thoroughly trained, both theoretically and practically, in his chosen trade if he ever expects to command first-class wages, and without such training his chances of ever reaching the position of foreman or superintendent of a mill are very slight indeed."

Holt, Grant & Holt, Altamahaw Cotton Mills, Elon College, N. C.:

"There is always a demand for any good thing. Philadelphia and Lowell each have just such a school as you are contemplating. We need better educated and better prepared men inside of our mills than we now have. We are frank to say we need men trained in textile schools to run our mills. * * * * We do not think a few hundred dollars and a cheap teacher would be of much use to the State, but if you can secure \$50,000 to \$100,000 and establish such a school as the two named, then you should have the support of all; but to start something to create a few more situations, offices, etc., it would be short-lived."

A Great Step.

S. A. Ashe, collector's office internal revenue service, fourth district, Raleigh, N. C.:

"The advantages to men who propose to be mill superintendents are apparent, but almost equally important is another benefit to the community. The Piedmont section of our State is probably destined to be the seat of a large manufacturing interest, and it would be an advantage for even the stockholders in such enterprises to be thoroughly educated as to the work that engages their capital. Indeed, the effect of such a school would be to give an additional impetus to such industries and quicken the growth of our manufactures. I would, therefore, hail the opening of such a school here as a great step in our industrial progress."

F. O. Moring, secretary and treasurer, Caraleigh Mills Co., Raleigh, N. C.:

"As an evidence as to what such an institution would be worth, I will say that I now have, and am compelled to have them, four trained men in my employ that I had to go to New England to get. Such a school would soon furnish this class of help out of home material. One of these men gets \$1800 per annum, one \$900 per annum and two of them \$3 per day. These places could all be filled by our home boys if they would equip themselves for the work. The majority of Southern mills have to get their expert help just as we do."

Pascal S. Boyd, Statesville Cotton Mills, Statesville, N. C.:

"In my judgment, nothing is more urgent, both for the highest interests of the manufacturing interests of the State and the whole South, and for the best interests of all young men who design devoting their lives to manufacturing. The demand for such a school grows out

of the sharp competition that exists today, and that must increase in the future, driving unskilled labor and the employers of it to the wall."

Gwyn-Harper Manufacturing Co., Patterson, N. C.:

"We think the school should be established and equipped with the most modern and improved cotton and woolen machinery, laboratory and competent instructors; also, that it should be conducted in connection with the North Carolina College of Agriculture and Mechanic Arts, and supported partly by students and partly by appropriation of the State."

Thos. J. Lillard, secretary, Elkin Manufacturing Co., Elkin, N. C.:

"We have felt very greatly the need of a textile school in each of our Southern States, and would heartily recommend the speedy establishment of such a school in Raleigh. Technically-educated men have many advantages over uneducated men, and go about their business in a scientific way."

J. W. Cannon, Cannon Manufacturing Co., Concord, N. C.:

"I consider the cotton-mill business to be one of the coming industries of our State, and a textile school should be established."

ADVANCING TO FINER GOODS.

Prospects of Southern Competition with New England.

"Yes, sir; sure as you are born." This strong affirmative from the Oakdale Cotton Mills, of Jamestown, N. C., is in reply to a question to Southern mill operators regarding the ability of the South to develop the manufacture of fine goods in competition with New England. The natural tendency and the natural opportunities are favorable to an advance on the part of the South in the manufacture of fine goods. New England journals continue to point out the difficulties. But that is an old story. Southern mill-owners are alive to the situation, but their purpose is tempered by conservatism, and their desire is to progress along safe lines.

Mr. Louis Cohn, general manager of the Meridian Cotton Mills, of Meridian, Miss., in a letter to the Manufacturers' Record takes a broad-minded view of the subject. He writes:

"The fact that large corporations in the textile business from the East are either building mills in the South or taking active interest in many mills in the South is evidence that the possibilities in the South for the manufacture are equal to those of the East. There are sections in the South in the heart of the cotton regions that are specially desirable locations for manufacturing finer goods on account of the uniformity of the atmosphere and freedom from dryness, even in the hot summer months. This may not be so of the Piedmont or other more northern sections of the Southern States, but there are many sections that the climate is equal to the best sections of England and superior to any Eastern points of the United States.

"The improved condition of trade in general should also be of benefit to the mills, and while raw material is cheap just now, offering a fair margin on products if prices are kept within reason, the mills must not be too anxious to sell, and thereby lose the greater portion of the margins now offered. There are losses of the past years to replace, wear and tear of machinery, improvements, and the fact that we are liable to stringent times in the future, all should urge the mills to hold values up to fair margins. The trade balances are in our favor, and every other industry is in better shape than for years past.

"Many of our mills are old and out of date. They will soon be entirely worthless, and must either reconstruct the mechanical parts or leave the business to the more modern mills. These older mills are in the majority, and are able to hold values up if they make proper efforts to do so."

Manufacturers generally share these views. They do not expect the change to come in a day. They realize the necessity for a greater supply of skilled

labor, but they are confident that such labor may be had, and they would hasten its development by the founding of textile schools. They know, too, that there must be a limit to home consumption of cotton goods, and see in the enlarging of the field of foreign commerce both the means and the end of their plans. They tell their own story as follows:

Aberdeen Mills, Poulan, Ga.—Yes; particularly if textile schools are established and given liberal support.

Aiken Manufacturing Co., Bath, S. C.—Only a question of skilled labor.

American Net & Twine Co., Anniston, Ala.—Not for some time, as it will take time to educate labor to a competitive point with New England labor.

Anderson Cotton Mills, Anderson, S. C.—Yes; and must come to it very soon.

Arcade Cotton Mills, Rock Hill, S. C.—There is no reason on earth why we cannot make as fine goods in the South as can be made anywhere, and cheaper. An up-to-date millman would not dare dispute it.

Atlanta Cotton Mills, Atlanta, Ga.—Not until they revamp their mills with machinery for fine numbers.

Avon Mills, Gastonia, N. C.—The South will develop into fine goods and compete with New England.

Auguste Manufacturing Co., Houston Heights, Texas—See no reason why South cannot compete with Eastern mills in any kind of textile work.

Bell, The, Factory, near Huntsville, Ala.—Yes; when the development of manufacture for coarse goods reaches the point where the profits are not satisfactory.

Camden Cotton Mill, Camden, S. C.—Our experience has been limited, but we see no reason why the South should not.

Cedartown Cotton Manufacturing Co., Cedartown, Ga.—Yes; but it will probably take some years to accomplish it. It will be largely a question of experienced, skilled hands.

Cherry Cotton Mills, Florence, Ala.—We do not see any reason why we should not, but there is every reason for getting into the field very soon, now that we are right on the edge of it.

Eagle & Phoenix Manufacturing Co., Columbus, Ga.—There is no reason why the finer goods should not be made in the South, and we believe the day is not far distant when Nos. 26 to 60 will be handled as successfully by the Southern mills as are Nos. 6 to 20 now.

Elizabeth City Cotton Mills, Elizabeth City, N. C.—That is a question for the future, and we can see no reason why the South cannot continue to develop until it can compete with the world.

Elizabeth City Net & Twine Co., Elizabeth City, N. C.—Yes. Some patience must be exhibited. We cannot jump into it suddenly.

Elkin Manufacturing Co., Elkin, N. C.—Certainly. They are now making both fine yarns and sheetings that pass for Eastern-made goods.

Elm Grove Cotton Mills, Lincolnton, N. C.—Most certainly. We can make anything a Yankee can.

Engelworth Mills, Randleman, N. C.—Development of the manufacture of fine goods is progressing gradually in the South.

Eno Cotton Mills, Hillsboro, N. C.—We see no reason why the Southern mills cannot make as fine yarns as are made anywhere, as we have intelligent help, and,

But North Carolina gives you fair warning that she intends to take the banner from you within a twelvemonth, and you may prepare yourselves for a most lively and interesting industrial battle if in November, 1898, you can still set up the claim that the Palmetto State still stands at the head.

"The strong point of the North Carolinians in making this fight I will reveal to you: While the North Carolina manufacturers believe in 'small mills,' because it has been practically demonstrated that they pay best according to the amount of capital invested in them, they do not believe in too small mills. Fully one-half the mills now in operation in this State, built principally within five to seven years, were erected and started up before the companies secured sufficient capital to make them as large and complete in point of equipment as they desired. They were, therefore, built with regard to future enlargement of from 50 to 200 per cent. Many of the main buildings now operating from 3000 to 7000 spindles have a floor capacity of from 10,000 to 20,000 spindles. This class of mills is constantly adding to the size of the plants without putting up a dollar's worth of new building, spindles and looms of the very latest improved patterns are being added almost weekly, 1000 to 5000 spindles at the time being put in. You can easily see how much easier it is to double the capacity or add 50 or 25 per cent. to the equipment of a 5000-spindle mill than it would be to organize a new company and build outright a new 5000-spindle one.

"A large manufacturer told me today that the 210 cotton-mill buildings now in existence in North Carolina could easily add over a half-million spindles and the usual complement of looms without driving a single nail in an additional building to hold them, and that with a small amount, relatively, of money invested in 'additions,' would hold double the number of looms and spindles now in operation here, so that even though we are building new mills faster than you are have been during the last year or two or three), the greatest increase we will be able to show a year hence in spindles and looms will be through the enlargement of the capacity of the old mills or those now in operation. Therefore, if you intend to continue to lead the procession, as the editor of the News and Courier so clearly indicates, you must have a keen eye to the modus operandi just pointed out to you.

No Labor Trouble.

"In conclusion, permit me to add that there is not visible in this State any of that alleged 'disruption of pleasant relations between the owners and operatives of Southern mills' which some Northern textile and other papers appear to think they have discovered in the evident intention to introduce the negro in competition with the white operative in Southern mills, and thus largely disrupt the really unusually pleasant and harmonious relations so long existing between employer and employee in Southern cotton manufacturing circles, and which has been one of the most valuable secrets of the success of the manufacturers.

"No mill in this State employs, except in the most menial capacity, any negroes about the establishment, and such a thing as a negro or negress operative is unknown and unexpected by either class.

"There is, however, now in course of construction a distinctively negro cotton mill (spinning) at Concord, which is half completed as to buildings, which is being built with negro capital and by negroes exclusively, after two or three years of hard work by the 'promoters.'

The money to equip it has not yet been raised, however, and as the manager (Coleman) tells me 'the subscriptions are very hard to collect,' it may be some time before it is put in operation, if ever, unless the white people come to their aid, as the management have, ineffectually, so far, been asking for some months. It is not thought that it will ever become such a success as to have many imitators.

In Sister States.

"A Northern cotton manufacturer, in the presence of several of his Northern brethren, recently remarked in my hearing that he did not believe that a single Southern State could show (that is proved as has been done above) that it actually had within its borders as many as 1,000,000 spindles and fully 25,000 looms. That the two Carolinas have each more than the number he declared his belief in their not having, I have certainly proved beyond doubt or cavil, so far as North Carolina is concerned, and as we admit that South Carolina has a few thousand more than we have it is not to be longer disputed that at least these two Southern States have in operation—not only 'within their borders,' but in actual operation—over 1,000,000 spindles and 25,000 looms each. * * *

"Some papers have poo-poohed the idea recently given expression to in the correspondence to the News and Courier and certain New York and Boston papers, to the effect that North Carolina will the fiscal year manufacture into various kinds of products by its mills now in operation all the cotton, or its equivalent, that has been grown within this State during the past twelve months, as stated to me by the commissioner of labor and officials of the State agricultural department several weeks ago.

"This statement is undoubtedly a correct one, for several reasons: First, because more spindles and looms are now and will be in operation during the ensuing ten or eleven months completing the cotton year than ever before. Second, because the total cotton crop this year is an abnormally small one for the acreage planted. Third, because fully 40 to 50 per cent. of the mills will, are now, actually running on extra time, from three to twelve hours' extra time out of the twenty-four. A long list shows me that that many are now running on what is known as 'double time,' with two sets of operatives, the machinery never ceasing to run from Monday morning to midnight Sunday. It is roughly guessed at that this extra time operation will continue for from three to five months out of the twelve. It is not necessary for them to operate 50 per cent. extra time for three months to much more than consume the few thousands of bales remaining after they have 'ate up' the normal regular time operations.

"Owing to the fact that North Carolina grows little more than 50 per cent. as much raw cotton as South Carolina, we will be able to manufacture all we grow, while the same spindles would manufacture little more than one-half the amount of raw material South Carolina grows. So it sounds bigger than it actually amounts to. Nevertheless it is a fact, and one which cannot be truthfully contradicted."

The Cotton Movement.

In his report for December 3 Secretary Hester, of the New Orleans Cotton Exchange, shows that during the ninety-four days of the season since September 1, 5,478,084 bales of cotton have been brought into sight, against 4,966,013 for the same period last year. There have been exported 2,695,676 bales, against 2,407,280. Great Britain still lagging by

13,391 bales. Northern mills have taken 904,485 bales, against 773,407, and Southern mills 349,575, against 334,453.

FROM START TO FINISH.

Necessity for Systematic Training in Textile Knowledge.

In a prize essay published in the Southern and Western Textile Excelsior the following wise words are written about the necessity for a textile school:

"An institution for acquiring knowledge is the first object sought by him who desires mental training. To meet this demand of expanding minds there have been established schools, colleges and universities of all kinds, fitted and equipped to teach and train young minds for every profession and calling known to man. Experience and time have shown more and more the necessity of thorough equipment in this work.

"The rapid increase of the textile manufacturing interests, especially in the South, most certainly has created the demand for an institution to develop talent and skill in this line, which beyond question is as important as the preparation and training for any other work in life.

"Crude manufacturing in this section is on the decline, and the tendency is toward a finer grade of yarns and cloth. This advancing change inevitably requires more practical skill for the production of a fabric that will successfully meet competition in the markets of the world.

Theory is one thing and practice might be called another. Experience has taught an operative that to learn he must study. A school, therefore, prepared to thoroughly teach the theory, and at the same time put in practice, is the only solution of the question of perfect development in manufacturing. A systematic curriculum, setting forth the various manipulations of the fabric, from the opening-room to the bale of finished product, puts the matter within the grasp of the student, and as he studies he makes the application and thus masters the perfection of the art for which so many toil and never attain."

An Example for Texas.

"One of the industrial marvels of the times," says the Houston Post, "is to see such a State as North Carolina immeasurably ahead of such a great State as Texas in manufacturing capital and enterprise of every description, and especially in cotton manufacturing, while we are the greatest single cotton-producing State in the world." The Post quotes the textile figures for North Carolina, and adds:

"Suppose we were doing this well in Texas, that a sixth of our crop were demanded for home consumption and that the people were saving the freights to and from Eastern or European markets for the raw product and the manufactured product—would not the fact be a vast financial gain to Texas? Would not the increased home demand, added to the existing foreign demand, greatly relieve the cotton situation in this section and in the South?

"When the agricultural classes in the Southern States enter heartily and financially into movements to create an extensive and ready home market for their products, they will begin to see more of the prosperity for which they are so constantly seeking."

Buying Home Products.

There are knitting mills in Scotland Neck and Kinston which give employment to a number of worthy women and girls, besides a man and boy now and then. Now, suppose the women of East-

ern Carolina should say: "These mills are giving employment to our neighbor women and children to whom it is a blessing to have the opportunity of making their own living, and we will wear stockings manufactured in no other mills as long as we can get these home-made articles?"

Such a course would be the means of enlarging every such enterprise within our borders, and before another year should roll by there would be evidence of a prosperity for which we all long and pray, but for which we actually do very little.—Scotland Neck (N. C.) Commonwealth.

The Indian Head Mills.

The Indian Head Cotton Mills, of Cordova, Ala., costing nearly \$600,000, are now complete, and will commence operations about January 1. The mill's equipment will be 50,000 spindles for manufacturing sheeting and cloths. A report current says that the company may build another mill of duplicate equipment. Messrs. Arthur and Harcourt Amory, of Boston, Mass., control this enterprise, and, according to a dispatch from Birmingham, Ala., they have closed a contract for the sale of the mill's entire output for five years. The product is to be sheeting and coarse cloths, and is to be shipped to China.

The Place for Mills.

In an interview in Chattanooga, Mr. S. M. Millikin, of New York city, largely interested in cotton mills, said: "I can frankly say that there is no better place in the United States to build cotton mills than in this vicinity. The cotton is at your door, the labor is not so well employed, and then you can get the same kind of help now that the operators had when they first started the mills in New England—native born—and men who are willing to work for pay. There is very little foreign labor to be found."

Textile Notes.

The Carroll Woolen Mills, of Carroll Station, Md., intends going out of business. W. G. Daugherty, of Baltimore, is treasurer of the company.

The Park Woolen Mills, of Rossville, Ga., may possibly add some new machinery after January 1. Electric-light plant has been added recently.

Mr. T. S. Crayton, of Anderson, S. C., intends to engage in the manufacture of cotton rope and twine, etc. Buildings are now ready, and plans and estimates of equipment are wanted.

The Blue Ridge Knitting Co., of Hagerstown, Md., has doubled its capacity recently, and is now working overtime on orders. Seamless cotton half-hose is the product of this mill.

The annual meeting of the stockholders of the Blue Ridge Cotton Factory Co., of Petersburg, Va., was held on the 3d inst. The following officers were re-elected: Andrew B. Jones, of Baltimore, Md., president; J. Wellington Dorsey, of Baltimore, secretary, and E. H. Blakeney, manager.

In his annual report, President Felix Couturie, of the New Orleans Cotton Exchange, states that the Exchange has increased its "handlings of spot cotton and 'to arrive,' the sales of which have reached nearly 1,000,000 bales, and in 'contracts,' notwithstanding the excessive dullness that characterized that branch, the business has amounted to 10,000,000 bales." He finds that the fever scare has not caused New Orleans to lose any of its prestige as a cotton market.

STATUS OF SOUTHERN MILLS.

Figures and Opinions Based Upon Cotton Manufacturers' Reports.

In response to circulars sent to all the cotton-mill owners of the South, the Manufacturers' Record has obtained not only data relating to the number of mills, their spindles and looms, but valuable suggestive material of deep interest for all those who are studying textile conditions.

First as to statistics. The total number of mills in twelve States is 483, of spindles 4,105,667, and of looms 103,298. Their growth in seven years may be readily reviewed in the following table:

	1890.	1892.	1897.	
	June 1.	Dec. 1.	Dec. 10.	Increase.
Mills	254	376	483	229
Spindles	1,712,930	2,552,258	4,105,667	2,392,737
Looms	39,231	55,640	103,298	64,067

It will be noted that there was a stronger tendency toward the building of mills and the increase of equipment before 1892 than there has been since then, more than one-half of the increase in the number of mills and more than one-third of the spindles having occurred between 1890 and 1892, and the increase in looms having been about the same proportionately in the two periods. But the cotton mills of the South have weathered the peculiar conditions, internal and external, of the past four or five years, and are as a whole taking a very hopeful view of the future.

Improvements Contemplated.

This is indicated by the number of improvements which have just been completed or which are in contemplation for the immediate future. Forty-three establishments in Alabama, Georgia, North Carolina, South Carolina, Tennessee and Texas have such plans, as follows:

Arcade Cotton Mills, Rock Hill, S. C.—To add 134 looms. Augusta Factory, Augusta, Ga.—To add 10,000 spindles and 100 looms, but not in near future.

Auguste Manufacturing Co., Houston Heights, Texas—Now organizing for additions, and expect to start putting in machinery in about six weeks.

Buffalo Manufacturing Co., Stubbs, N. C.—To double capacity next year.

Cedartown Cotton Manufacturing Co., Cedartown, Ga.—Treble present plant at once, but not any looms.

Cherry Cotton Mills, Florence, Ala.—To add cards and equipments very soon, about \$6000 to \$8000.

Columbia Cotton Mills, Columbia, Ala.—To add four cards with collars, Lowell Machine Shop make; two drawing frames, four deliveries each, and doubling six into one. Coosa Manufacturing Co., Piedmont, Ala.—We have bought machinery and business of Barlow & Thatcher Spinning Co., of Henry Clay, Delaware; 5168 spindles; business same as ours other than colored yarn. This machinery is arriving now and we expect to get it started by January 1, 1898.

Eagle & Phoenix Manufacturing Co., Columbus, Ga.—Just added dyehouse, rope, finishing and spinning machinery, drawing frames, woolen cards, water-wheel plant, looms and rope-driving machinery.

Efrid Manufacturing Co., Albemarle, N. C.—Expect to double capacity early in spring.

Eno Cotton Mills, Hillsboro, N. C.—Now putting in 1250 spindles with twister.

Fairfield Cotton Mills, Winnboro, S. C.—Engine bought for a 10,000 to 12,000-spindle mill, with looms sufficient to use product of said spindles. Everything pertaining to mill that cannot be conveniently changed has been erected for 10,000 to 12,000 spindles.

Galveston Rope Co., Galveston, Texas—Have increased plant 25 per cent, and built warehouse 100x125.

Georgia Manufacturing Co., White Hall, Ga.—To add 3228 spindles in next six weeks.

Granite Falls Manufacturing Co., Granite Falls, N. C.—At present placing lapper-room machinery; also engine to help out water-power.

Griffin Manufacturing Co., Griffin, Ga.—To add some looms, but can't say when.

Hadley People's Manufacturing Co., Siler City, N. C.—Are arranging to increase outfit.

Herdean Mills, Poulan, Ga.—Two sets cards and spindles to correspond.

High Shoals Manufacturing Co., High Shoals, Ga.—Possibly 2000 spindles to be added.

Hope Mills Manufacturing Co., Hope Mills, N. C.—Building 50x130, one story, for beaming-room.

Kesler Manufacturing Co., Salisbury, N. C.—Some time in 1898 5000 spindles or 150 looms.

Kincald Manufacturing Co., Griffin, Ga.—May in 1898 more than double size of mill.

Laboratory Cotton Mills, Lincolnton, N. C.—Three new twisters.

Linden Manufacturing Co., Davidson, N. C.—Are considering putting in four more spinning frames and corresponding amount of roving machinery.

Long Shoals Cotton Mills, Long Shoals, N. C.—Latter part of next year, but don't know whether we will add looms or spindles alone.

McColl Manufacturing Co., McColl, S. C.—Have added 2000 spindles this year, one boiler, one engine and other machinery in proportion.

Mallison Braided Cord Co., Athens, Ga.—Looms purchased for back-band webbing.

Minneola Manufacturing Co., Gibsonville, N. C.—To add looms.

Oakdale Cotton Mills, Jamestown, N. C.—Ten hundred and eight spindles being put in.

Rock Hill Cotton Factory Co., Rock Hill, S. C.—To add within next year 2000 spindles and fifty looms.

Snow, J., Hardware Co., Tuscaloosa, Ala.—Eighty looms. Spencer Mountain Mills, Lowell, N. C.—To make about 2000 spindles complete.

Spray Cotton Mills, Spray, N. C.—To build cotton warehouse in few days.

Steele's Mills, Rockingham, N. C.—To add 50 per cent. more machinery.

Sutherland Manufacturing Co., Augusta, Ga.—Just added 1200 spindles and will add 2000 more later.

Tennessee Cotton Mills, Elizabethton, Tenn.—This mill now being built, and will be in operation about December 15, 1897.

Trenton Cotton Mills, Trenton, Tenn.—To add 600 spindles first of next year.

Tuscaloosa Rope and Yarn Mills, Tuscaloosa, Ala.—Putting in some new machinery in place of old patterns.

Victor Manufacturing Co., Greers, S. C.—By January 1, 1898, 5040 more spindles and ninety more looms.

Wayne Cotton Mills, Goldsboro, N. C.—Hope to treble capacity before very long, and are now installing engine with that point in view.

Walesca Mill, Woodstock, Ga.—Just added rope machinery, capacity 1000 pounds per day.

Wehadkeee Cotton Mills, Rock Mills, Ala.—To add 500 spindles.

Worth Manufacturing Co., Worthville, N. C.—To add about 500 spindles.

Opinions Added to Facts.

These facts show that the textile industry of the South is still on the upward grade, and they are borne out by the opinions on the outlook of the manufacturers. Naturally, there is a wide range of such, the local situation often dominating the point of view. The descriptive words and phrases include fair, good, very good, gloomy, poor, excellent, encouraging, fairly good, bright, blue, favorable, business overdone, not promising, not flattering at present, not as good as should be, confident that business will be good after yellow fever ceases, profits not as large as we would like, no reasonable cause for complaint but would like better prices, not as good as heretofore, sales are slow and prices rule low, demand for goods very slack, there is a fine profit in manufacturing cotton, room for improvement, not bright but the South will stand it as long as any other section, improving constantly, plenty of work at very low prices, prices are temporarily depressed, yarns are high but colored goods are very low and print cloths too low for profit, low price of print cloths leaves very little margin for manufacturers, outlook better than since 1892, convertible sheetings and print cloths cheaper than ever known before in the history of manufacturing, not so good as a few weeks ago, better in this section than for two years past, just now not quite so brilliant, not as good as we would like to see it, and cotton mills doing very well now, mostly on yarns.

Differences among manufacturers are illustrated in connection with night work. Here is one mill running day and night crews, presumably at a profit. Another finds that the outlook is promising, mills running on full time and a great many at night. But there is opposition. One manufacturer, for instance, believes that business would be first-class if the mills would let night work alone. "We note a disposition on the part of a large percentage of mills to start night work," writes another, "and we fear it will prove 'killing the goose to get the golden eggs.' A third sees in the movement a craze to flood the market, with the effect of bringing down prices, and a fourth fears that it will produce overproduction and will cause a return to the old rut.

A Few Typical Letters.

The following opinions may be regarded as a summary of the general situation:

Allen Bolting Co., Columbia, S. C.—We are in shape to reap profits if they are ever in legitimate business. Very many of our mills are up to date and are capable of producing at an low cost as anywhere.

Arade Cotton Mills, Rock Hill, S. C.—While not bright, it is better than for the past year. Mills can earn a fair interest at present price of cotton and goods. Profits would not be enticing, and it will check reckless building of mills.

Camden Cotton Mill, Camden, S. C.—But for the low price of goods the chances would be very favorable. Labor No. 1 scarce and cotton low.

Eagle & Phoenix Manufacturing Co., Columbus, Ga.—We regard the outlook as being very hopeful, our mills being well sold ahead on their product at satisfactory prices.

Elkin Manufacturing Co., Elkin, N. C.—Good, but cotton and cotton yarns are both too low. Wish cotton would go to ten cents a pound and stay there.

Excelsior Manufacturing Co., Cuero, Texas—The time is coming when the farmers will manufacture their own cotton into cloth. They are getting their eyes open to their own interest.

Fairfield Cotton Mills, Winnboro, S. C.—At present it is very good, the product being higher in proportion than the raw material. We have confidence and plenty of genuine grit.

Fort Mill Manufacturing Co., Fort Mill, S. C.—The outlook now is some brighter than it has been for some months. Prices for staples in colored cotton goods and print cloths are too low now, though, for the mills to make any profit much. We hope for better prices soon.

Globe Cotton Mills, Rock Hill, S. C.—Weavers are not present making money. Spinners of two-ply yarns are at present doing well.

Grahamon Manufacturing Co., Grahamon, Ky.—We can only answer as to our line of seamless grain bags. Since August 1 we have had more orders than we can fill, and likely to continue active, at least for this year.

Granite Falls Manufacturing Co., Granite Falls, N. C.—The outlook for profits at present is not favorable, but we hope for better times. We are building too many mills on the same class of goods.

Jonesboro Cotton Mills Co., Jonesboro, N. C.—We think it fairly good, but do not think there is much more room for expansion for most of the lines produced in the South at present.

Lexington Manufacturing Co., Lexington, S. C.—We are buying cheap cotton, but goods have declined about in proportion, and we do not regard the outlook encouraging, unless we have some reaction in lint cottons and yarns.

Long Shoals Cotton Mills, Long Shoals, N. C.—Good, but we do not look for the building of new mills as rapidly in the future as in the past ten years.

Ossipee Cotton Mills, Elton College, N. C.—The outlook seems much brighter than it did last year this time, and but for the exceedingly low price of cotton we think our business would be about as much as we could expect, taking in consideration the depression for the past three or four years.

Rock Hill Cotton Factory Co., Rock Hill, S. C.—Fairly good. Majority of the mills are making a little money. The improvement since May last is quite noticeable. We look for moderately prosperous times.

Spartan Mill, Spartanburg, S. C.—Very few mills are making dividends. Some are losing money. The outlook for profitable business is very poor indeed.

Tarboro Cotton Factory, Tarboro, N. C.—Better than we

have had for some time, but plenty of room for improvement yet.

Tennessee Manufacturing Co., Nashville, Tenn.—Not promising, unless the present relation of prices can be maintained as a result of less severe home competition, and unless the whole country can enjoy an increased and better export business.

Trenton Cotton Mills, Trenton, Tenn.—If we judge the whole South by ourselves, it is bright. Previous to prevalence of yellow fever everything was going quite nicely. There will be good business after fever is frozen out. I expect the whole country, the South in particular, to have a fine spring trade. If mill building does not progress too fast, the South possesses advantages that will help the outlook good.

Tuscaloosa Rope and Yarn Mills, Tuscaloosa, Ala.—Good. In this section big crop, large amount of cotton in the fields; farmers holding generally for better price.

Tuscarora Cotton Mills, Enfield, N. C.—Generally, it has been good, though several firms have succumbed to the hard times and changed hands, while many have made much money.

Vance Cotton Mills, Salisbury, N. C.—Very good, though some think that the low price of cotton will force the price of unmanufactured goods so low as to bring back and continue the same distressing condition from which we hoped we were just emerging.

Walesca Mill, Woodstock, Ga.—I think the outlook is good. The profit is short now, but we have the advantage in climate, labor and water-power; also have the raw material at our doors.

Walker & Miller, Arlington, S. C.—Good. If cotton (raw) could be sold for high prices by the producer, everything would be favorable in the South; but, as to foreign markets, I know but little.

West Huntsville Cotton Mills, Huntsville, Ala.—We think the outlook very bright, but we must seek a foreign market for our goods if we want to continue to advance the manufacturing interests of the South.

Wilmington Cotton Mills, Wilmington, N. C.—While our trade is good, we are not sufficiently posted to look beyond the temporary dullness caused in the cotton-goods trade by the yellow fever and the decline in cotton.

Statistics by States.

Facts of contemplated improvements and additions and the consensus of opinion show strength. Statistics are equally encouraging. Following is the summary of the mills and equipments by States:

States.	Mills.	Spindles.	Looms.
Alabama	41	297,222	6,370
Arkansas	3	13,448	294
Georgia	84	763,662	18,364
Kentucky	7	61,512	1,001
Louisiana	6	62,000	1,546
Maryland	21	198,180	3,611
Mississippi	10	72,488	2,334
North Carolina	182	1,023,132	23,334
South Carolina	81	1,272,364	36,859
Tennessee	29	156,145	3,275
Texas	9	43,806	1,205
Virginia	10	141,708	5,085
Total	483	4,105,667	103,298

In the following lists appear the name and location of each mill, with the number of its spindles and looms. Every effort has been made to have this list accurate:

ALABAMA.

Name.	Location.	Spindles.	Looms.
Dwight Mfg. Co.	Alabama City	30,000	1,000
American Net & Twine Co.	Anniston	5,000	...
Anniston Bag & Mill Co.	Anniston
Anniston Cordage Co.	Anniston	1,500	...
Anniston Mfg. Co.	Anniston	11,000	320
M. M. Smith Co.	Autauga	2,200	63
Melbourne Cotton Mill	Bear Creek	640	...
Bell Factory	Bell Factory	3,216	80
Avondale Mills	Birmingham	36,000	1,150
Birmingham Cotton Mfg. Co.	Birmingham	4,200	...
Columbia Cotton Mills	Columbia	2,100	...
Tuscaloosa Mfg. Co.	Cottontown	12,000	300
Cullinan Cotton Mill Co.	Cullinan		

Name.	Location.	Spindles.	Looms.	Name.	Location.	Spindles.	Looms.	Name.	Location.	Spindles.	Looms.
Clegg Mfg. Co.	Columbus	118		Charlotte Cotton Mills.	Charlotte	9,000	248	Wilmington Cotton Mills.	Wilmington	6,388	286
Eagle & Phoenix Mfg. Co.	Columbus	46,022	1,502	Victor Cotton Mills.	Charlotte	12,672		Wilson Cotton Mills.	Wilson	6,080	
Muscogee Mfg. Co.	Columbus	12,500	438	Cherryville Mfg. Co.	Cherryville	6,000		Worth Mfg. Co.	Worthville	12,000	412
Paragon Mfg. Co.	Columbus	195		Gaston Cotton Mill.	Cherryville	5,000		Total, 182 mills.		1,023,132	23,334
Steam Cotton Mill.	Columbus	4,000		Patterson Mfg. Co.	China Grove	8,944	158	SOUTH CAROLINA.			
Swift Mfg. Co.	Columbus	12,000	400	Cleveland Cotton Mills.	Coleridge	3,500		Abbeville Cotton Mills.	Abbeville	10,080	304
Hamburger Cotton Mills.	Columbus	6,000	198	Enterprise Mfg. Co.	Concord	4,500	286	Anderson Cotton Mills.	Arlington	35,000	1,120
Cordele Mfg. Co.	Cordele	3,600		Caburn Cotton Mill.	Concord	2,080		Pendleton Factory.	Autun	2,500	
Porter Mfg. Co.	Cornelia	3,000		G. W. Patterson Mfg. Co.	Concord	17,000	500	Bamberg Cotton Mills.	Bamberg	10,752	248
Porterdale Mills.	Covington	5,000		Odell Mfg. Co.	Concord	28,350	1,328	Aiken Mfg. Co.	Bath	27,000	700
Randolph Mfg. Co.	Cuthbert	2,888		Yadkin Falls Mfg. Co.	Concord	5,000		Kershaw Mfg. Co.	Camden	10,000	300
Crown Cotton Mills.	Dalton	10,000	256	Cumberland Mills.	Cumberland	3,300	88	Norris Cotton Mills.	Oateechee	11,648	228
Phoenix Factory.	Debruce	5,100		Dallas Cotton Mills.	Dallas	2,080	116	Royal Bag Mfg. Co.	Charleston		
Houston Factory.	Dennard	2,240	60	Cornelius Cotton Mills.	Davidson Col'ge	4,800		Charleston Cotton Mills.	Charleston	28,000	720
Douglasville Hos. & Cot. Co.	Douglasville	6,000		Linden Mfg. Co.	Davidson Col'ge	3,940		Cherokee Falls Mfg. Co.	Cherokee Falls	7,072	392
Georgia Western Cot. Mills.	Douglasville	15,000		Double Shoal Cotton Mills.	Double Shoal	2,300		Catawba Mills Co.	Chester	5,000	
Pearl Cotton Mills.	Elberton	3,000		Commonwealth Cot. Mfg. Co.	Durham	6,400		Chester Mfg. Co.	Chester		401
*Swift Cotton Mills.	Elberton	7,000	174	Erwin Cotton Mills Co.	Durham	25,088	1,015	Clifton Mfg. Co.	Clifton	85,792	2,710
Forsyth Mfg. Co.	Forsyth	3,000		Pearl Cotton Mills.	Durham	10,000	210	Clinton Cotton Mills.	Clinton	11,000	289
Georgia Mfg. Co.	Gainesville	3,300		Durham Cotton Mfg. Co.	E. Durham	12,000	340	Clover Cotton Mfg. Co.	Clover	6,000	
Griffin Mfg. Co.	Griffin	10,000	400	Elizabeth City N. & T. Co.	Elizabeth City	900		Columbia Battling Co.	Columbia	30,000	
Kincald Mfg. Co.	Griffin	6,410	228	Elizabeth City Cotton Mills.	Elizabeth City	6,600		Granby Cotton Mills.	Columbia	30,000	1,400
Harmony Cotton Mills.	Harmony Grove	4,160	156	Elkin Mfg. Co.	Elkin	2,000		Richland Cotton Mills.	Columbia	14,848	720
Hartwell Cotton Mills.	Hartwell	3,000	102	Holt, Gault & Holt.	Elon College	6,500	820	Miller Battling Mfg. Co.	Columbia H'ght.		
High Shoals Mfg. Co.	High Shoals	7,900	81	Erwin Cotton Mills Co.	Elon College	3,600	204	Cowpens Mfg. Co.	Cowpens	7,072	204
Pepperpot Cotton Mills.	Jackson	5,000	160	Ossipee Cotton Mills.	Elmfield	1,500		Darlington Mfg. Co.	Darlington	11,040	384
Jewell Mills.	Jewell's	3,600	121	Tuscarora Cotton Mills.	Fayetteville	6,000	250	Edgefield Mfg. Co.	Edgefield	5,000	180
Union Cotton Mills.	La Fayette	7,680	208	Holt-Morgan Mills.	Fayetteville	3,800	72	Enoree Mfg. Co.	Enoree	30,720	820
Dixie Cotton Mills.	La Grange	16,000	500	Phoenix Mfg. Co.	Fayetteville	3,120		Fairmont Yarn Mills.	Fairmont	3,744	120
La Grange Mills.	La Grange	5,000	75	Bluff Mills.	Fayetteville	3,100		Fingerville Mfg. Co.	Fingerville	3,000	
Massachusetts Mills in Ga.	Lindale	30,600	1,132	Fayetteville Cotton Mills.	Fayetteville	2,000		Fork Shoals Mfg. Co.	Fork Shoals	5,200	
Osceolean Mill.	Lithonia	1,300	6	Florence Mills.	Fayetteville	10,080		Fort Mill Mfg. Co.	Fort Mill	5,200	423
Bibb Mfg. Co.	Macon	23,000		Franklinville Mfg. Co.	Fayetteville	4,032	208	Millfort Cotton Mills.	Millfort	5,200	160
Manchester Mfg. Co.	Macon	6,000		Franklinville	Fayetteville	3,100		Gaffney Mfg. Co.	Gaffney	51,116	1,400
Monroe Cotton Mills.	Monroe	5,200	160	Franklinville	Fayetteville	2,000		D. E. Converse Co.	Glendale	17,280	518
Newnan Cotton Mill.	Newnan	6,300		Gastonia Cotton Mfg. Co.	Gastonia	9,360	136	Graniteville Mfg. Co.	Graniteville	35,000	1,106
Rice, Love & Porter.	Nicocajack	30		Avon Mills.	Gastonia	10,080	260	Warren Mfg. Co.	Graniteville	30,000	650
Palmetto Cotton Mills.	Palmetto	5,000	106	Modena Cotton Mills.	Gastonia	4,032	208	Batesville Mill.	Greenville	2,500	
Oglethorpe Mfg. Co.	Panola	4,000		Trenton Cotton Mills.	Gastonia	3,100		American Spinning Co.	Greenville	10,000	230
Morris South. C. Y. Mfg. Co.	Panola	5,000		Hawthorne Mills.	Gastonia	2,000		F. W. Poe Mfg. Co.	Greenville	10,080	304
Taylor Mfg. Co.	Potterville	2,250		Proximity Mfg. Co.	Gastonia	7,500		Greenville Cotton Mills.	Greenville	2,500	
Aberdeen Mills.	Poulan	180		Harden Mfg. Co.	Harden	2,380		Manette Mills.	Irene	5,000	224
Ouitman Mills.	Quitman	1,854	20	Granite Mfg. Co.	Haw River	8,500	436	Lancaster Cotton Mills.	Lancaster	10,600	476
Raccoon Mfg. Co.	Raccoon Mills.	3,500	104	Haw River.	Haw River	7,108	252	Langley Mfg. Co.	Langley	43,000	1,202
Elmira Cotton Mill.	Reynolds	1,500	40	Leake Mills.	Haw River	2,500		Laurens Cotton Mills.	Laurens	37,440	1,008
Rome Cotton Factory.	Rome	5,136	108	Leaksville Cotton Mills.	Haw River	2,000		Lexington Mfg. Co.	Lexington	3,000	204
Roswell Mfg. Co.	Roswell	11,984	120	Hawthorne Mills.	Haw River	1,500		Lockhart Mfg. Co.	Lockhart	25,000	800
Wahoo Mfg. Co.	Sargent	3,000		Hawthorne Mills.	Haw River	1,500		Marion Mfg. Co.	Marion		
Savannah Cotton Mills.	Savannah	7,736		Hawthorne Mills.	Haw River	2,000		McColl Mfg. Co.	McColl	9,500	
Shoal Creek Mfg. Co.	Shoal Creek	2,200		Hawthorne Mills.	Haw River	2,000		Newberry Mfg. Co.	Newberry	25,000	874
Toccoa Cotton Mills.	Toccoa	5,000	160	Hawthorne Mills.	Haw River	2,000		Courtenay Mfg. Co.	Courtenay	16,176	540
E. A. Fincher.	Too Nigh	900		Hawthorne Mills.	Haw River	2,000		Orange Mill.	Orangeburg	5,096	
Trion Mfg. Co.	Trion Factory	26,640	758	Hawthorne Mills.	Haw River	2,000		Enterprise Cotton Mills.	Orangeburg	10,000	300
Troup Factory.	Troup Factory	1,600	52	Hawthorne Mills.	Haw River	2,000		Pacolet Mfg. Co.	Pacolet	58,328	2,160
Wayman Cotton Mills.	Waymanville	3,708	76	Hawthorne Mills.	Haw River	2,000		Pelham Mills.	Pelham	10,000	
Lanett Cotton Mills.	West Point	26,000	700	Hawthorne Mills.	Haw River	2,000		Pelzer Mfg. Co.	Pelzer	107,000	3,200
Galeton Cotton Mills.	West Point	5,600	159	Hawthorne Mills.	Haw River	2,000		Piedmont Mfg. Co.	Piedmont	58,720	1,836
West Point Mfg. Co.	West Point	18,000	440	Hawthorne Mills.	Haw River	2,000		Prosperity Mills.	Prosperity	5,000	200
Georgia Mfg. Co.	White Hall	8,320		Hawthorne Mills.	Haw River	2,000		Reedy River Mill.	Reedy Rv.	10,000	285
Total, 84 mills.		763,662	18,364	Hawthorne Mills.	Haw River	2,000		Cedar Shoals Mfg. Co.	Richburg	1,200	
KENTUCKY.				Hawthorne Mills.	Haw River	2,000		Fishing Creek Mfg. Co.	Richburg	6,000	
Argonaut Cotton Mill Co.	Covington	4,200		Hawthorne Mills.	Haw River	2,000		Globe Cotton Mills.	Rock Hill	7,800	320
Grahamton Mfg. Co.	Grahamton	3,000	73	Hawthorne Mills.	Haw River	2,000		Rock Hill Cotton Factory Co.	Rock Hill	7,904	192
Henderson Cotton Mills.	Henderson	34,592	866	Hawthorne Mills.	Haw River	2,000		Standard Cotton Mills.	Rock Hill		486
Louisville Cotton Mill Co.	Louisville	14,432		Hawthorne Mills.	Haw River	2,000		Arcade Cotton Mills.	Rock Hill	6,032	160
Louisville Girth & Blkt. Mills.	Louisville	288	2	Hawthorne Mills.	Haw River	2,000		Manchester Cotton Mills.	Rock Hill	6,000	300
January & Wood Co.	Maysville	5,000		Hawthorne Mills.	Haw River	2,000		Arkwright Mills.	Rock Hill	3,072	374
Owensboro Woolen Mills Co.	Owensboro	60		Hawthorne Mills.	Haw River	2,000		Roumont Mfg. Co.	Spartanburg	72,000	2,458
Total, 7 mills.		61,512	1,001	Hawthorne Mills.	Haw River	2,000		Spartan Mill.	Spartanburg	72,000	2,458
LOUISIANA.				Hawthorne Mills.	Haw River	2,000		Sumter Cotton Mills.	Sumter	3,000	
Monroe Cotton Co.	Monroe			Hawthorne Mills.	Haw River	2,000		Union Cotton Mills.	Union	54,848	1,400
Crescent City Y. & K. Mill.	New Orleans	1,248		Hawthorne Mills.	Haw River	2,000		Walhalla Cotton Mills Co.	Walhalla	5,000	187
Kerr-O'Brien Co.	New Orleans			Hawthorne Mills.	Haw River	2,000		Colleton Cotton Mills.	Walterboro		
Lane Mills.	New Orleans	17,000	400	Hawthorne Mills.	Haw River	2,000		Tucanap Mills Co.	Wellford	16,000	470
Maginnis Cotton Mills.	New Orleans	40,752	1,166	Hawthorne Mills.	Haw River	2,000		Whitney Mfg. Co.	Wh		

MAKING THE ROUND BALE.

Mr. August Kohn Describes the Process at Barnwell—Editorial Comment.

In an elaborate letter from Columbia, S. C., to the Charleston News and Courier, Mr. August Kohn describes the process of baling cotton by the cylindrical process at Col. Mike Brown's plant at Barnwell. He contends that the round bale is to come into general use, and says:

"There is no mystery about the round bale, and anyone can readily understand the process. The cotton at the Barnwell plant is ginned by four Winship 70-saw gins. The material difference from other plants is in the press. The cotton is taken in as at any other gin, only that Colonel Brown has introduced innovations, and cotton can be taken as readily by suction pipe from a car on the sidetrack, or a wagon on the scales, as from a bin where the cotton has accumulated. After the cotton passes through the gins it is blown into a condenser, where the trash is eliminated. In the condenser of this plant the purpose is to separate the air from the cotton, and also as much of the dirt and trash as possible; then the cotton goes to the bat-former, which consists of two aprons, which carry the cotton downward and which gradually compress it until it comes out at the bottom of the bat-former in the form of a thick uniform bat. The bat passes down the chute between the stationary roll and the compression roll, which gets the cotton into shape for the bale. This cotton bat is simply wound around an iron core, and by the pressure in the cylinder and the hydraulic force a compact bale is made. The bale is wound between two large cylinders, which are covered with rubber, which protects the cotton from damage. All of the bales, of course, are of uniform size—four feet long and about two feet in diameter. The weight of the bale, of course, depends upon the cotton that is offered to be put in the bale, and at Barnwell I saw bales turned out from 333 to 529 pounds. After the cotton to go into the bale has been wound into a round or cylindrical form it is ready for its cover, and a jute or cotton cover is rolled neatly around it and the bale is completed, and by a lever it is then thrown from between the two iron rollers and is rolled over to have the covering sewed. The iron rod which is put in as a core is then driven out and the package is complete.

Sampling Waste Avoided.

"The presses are all owned by the American Cotton Co., of New York, and it guarantees the cotton gotten out to come up to sample. One of the best claims of the bale is that it protects the cotton against frequent sampling. The sampling is done in this process; when the bale is about three-fourths to two-thirds made a handful of cotton as it comes into the bale is taken out. This sample is divided into two pieces, two little tags, corresponding to the number of the bale and the trade-mark of the gin, are put into a bag or package with two-thirds of the sample; the other one-third of the sample, after being neatly wrapped with the corresponding tag, is put aside. The smaller sample, which contains the same number as the larger sample and the bale number, is retained at the mill, either for its own use, or is offered to a buyer who might want to purchase the bale direct. The American Cotton Co. guarantees the bale to come up to the classification it makes. If an additional sample be needed it can be taken out by means of an auger.

Farmers and Tare.

"Now what the South Carolina farmer wants to know is, where he comes out in this new order. The cotton at the Barnwell press is bought on a Charleston basis, and is so guaranteed by the American Cotton Co. The cotton press has the option of selling the cotton to anyone it wants to, but in case it can't dispose of the cotton it has a guaranteed market from the American Cotton Co., which takes all of the cotton that is offered. This, it will be seen, guarantees a market for the press, and it can consequently offer Charleston quotations, having the American Cotton Co. at its back. By offering Charleston market price the farmer at Barnwell gets twenty-seven points freight to Charleston, without regard to the forty cents that is necessary for compressing export cotton, and the additional cost for insurance and handling. It is to be remembered that the round bale is compressed and already a smaller package than the square bale when it comes from the press. Some farmers seem to think that they lose by not being able to get pay for their bagging and ties. Of course, it is admitted that the European market takes off 6 per cent. for tare, and if the farmer does not know it, it is for his bagging and ties, although he may not think so. So it is a fallacy to think that this goes into the price of cotton when it is taken out of the ordinary price. But to take things as they seem to exist. A few days ago when the inquiry was made it was worked out thus: Take a 529 bale of cotton—cotton they had on the streets of Barnwell was selling at 4½ cents, would have made a bale bring \$25.13 in the square bale; allow twenty-six to thirty pounds for tare (bagging and ties), this would cost 80 cents; allow the price of cotton on the thirty pounds of tare, and you will have \$1.42; take from this the 80 cents, the cost of the bagging and ties, and the farmer apparently has a profit of 62 cents.

"Now, on the other hand, take the round bale: Cotton at the press that day actually brought 5½ cents, which it is said was the price of the same grade as the 4½ cents square-bale cotton; 529 at 5½ cents is \$27.11; take from this the \$25.13, and there is a difference of \$1.98 in favor of the round bale, but this is reduced by the 62 cents apparent difference in the square bale to \$1.36, which seems to be the actual difference in favor of the round bale. The cost of the ginning for the square and the round bale may be put down at \$1.50 each, which is a stand-off so far as the calculation goes. These figures seem to be verified by several sources, samples from the square bale being shown cotton agents and the highest price that was offered was 4½, while the round-press people were actually paying 5½ cents.

"Perhaps one of the best indications that the round-bale press was accepted in the community as more than an experiment was the fact that such successful farmers as J. Allen Tobin and W. J. Duncan and others, who own their own cotton gins, brought their cotton a distance of five miles, so as to have it ginned and baled at the round-bale press.

"Senator S. G. Mayfield, who is the third largest farmer in the old Barnwell county, said that there was absolutely no question about the success and utility of the 'round'-bale system, and that the only possibility of its not being accept-

able was the chance of the American Cotton Co. becoming a 'trust,' which would control the price of the cotton. It was argued against this that there are already other systems of condensed baling on the market; that the American Cotton Co. is satisfied with its profits out of the baling system; that cotton cannot be 'cornered,' and, moreover, that no one has any such intention. Other farmers expressed the same idea with reference to the new system. One of them advanced the suggestion that with his present plant paid for he could not afford to pay a royalty to some other company as long as he could find a market for his cotton baled as it was, and, of course, it will be years before the round-bale system becomes at all universal."

For Better Packages.

Discussing the round bale the Florida Times-Union and Citizen says:

"We do not undertake to say whether reform in handling cotton should be accomplished by adopting the cylindrical bale. That bale is still an experiment—possibly not a successful one. But there is an objection to this kind of bale, put forward by persons who should know better than to do so, that we do not doubt has misled many persons and really obstructs reform. It is that the present clumsy, badly-covered bales are best for the farmer because he makes money on the bagging and ties. As a matter of fact, he does nothing of the kind. Cotton is sold in Liverpool, where the price for the world is practically fixed, at the net weight of the bale, not at its gross weight. In this country, where a different system prevails, allowance is made in the price paid for the foreign practice, and the difference between American and Liverpool prices is thus larger than it would otherwise be. The proposition is about equivalent to saying that more money can be obtained for a less valuable bale of cotton than for a more valuable one."

In the same line are the following suggestions from the Montgomery (Ala.) Advertiser:

"It need not be urged or argued that our farmers cannot help themselves, or that they would lose by the adoption of a better system, for neither argument would be tenable. Whether they adhere to the present form of bales, or whether they adopt the round bale which is coming into notice is of little consequence. They would lose nothing in the first place by having the cotton fully covered by the bagging and properly bound, and they would certainly gain in the end by getting a better price for neat bales and clean lint. It is hard enough for them to live while such low prices prevail, and their self-interest, as well as pride, should lead them into better and more profitable methods."

RICH IN RESOURCES.

Calhoun County, Alabama, and Its Metropolis, Anniston.

[Special Cor. Manufacturers' Record.]

Anniston, Ala., December 7.

One of the most attractive sections of Alabama is in Calhoun county. It is noted for the variety of its resources, which include not only extensive tracts of timber land, but also a large acreage of very fertile soil and a mineral territory which has given it a widespread reputation. While the surface of the county is somewhat hilly, and presents the usual characteristics of a mining region, the different varieties of soil afford an opportunity for a diversity of production which is very favorable to agriculture. The valley lands are usually selected for cotton, on account of the

large yield of this staple, while the uplands freely produce crops of corn, wheat and other grains, as well as potatoes, peas, peanuts, etc. A portion of the county has been found to be suitable to horticulture, and it may be said that orchard fruits of a fine quality, such as apples, peaches and pears, are grown in abundance, as well as grapes and plums.

The Alexandria and Choccolocco valleys are localities which have aided in giving the South its reputation for fertility. These valleys are located in Calhoun county, and are divided into some of the finest farms in the South. Farm lands vary in price from \$2.50 to \$25 an acre.

As an illustration of the timber resources it may be stated that both long and short-leaf pine, red, black, white and other varieties of oak, also hickory, walnut, beech, poplar, elm, ash and sweet gum, are to be found in the forests of large size awaiting the axe of the timberman. The mineral deposits of Calhoun county, as already stated, have given it a wide reputation. Experts are of the opinion that these resources are practically exhaustless. Among the ores are brown and red hematite iron, which is to be found in all sections of the county, as well as manganese, marble, kaolin, sandstone, copper, lead, lithographic stone and an excellent quality of clay for fire-brick. Many of these deposits are near streams, where abundant power can be obtained if necessary for manufacturing purposes.

Anniston may be called the metropolis of Calhoun county. It is one of the most progressive cities in the South, and, lying between Alexandria and Choccolocco valleys, affords an excellent home market for the products of this locality. Anniston presents many opportunities for investors who desire to engage in industrial and business enterprises. It is the site of several large plants, among them the Illinois Car and Equipment Works, which is one of the most important of its kind in the country. Others are the United States Car Co., Anniston Pipe & Foundry Co., Hercules Foundry Co., iron sanitary pipe and plumbers' supplies; Woodstock Iron Works, two charcoal and two coke furnaces, total capacity 400 tons pig iron per day; Anniston Rolling Mills; Midway Machine Shop, steam engines and boilers; Anniston Boiler Works, steam boilers; Noble Bros. Co., manufacturer of iron castings in great variety; Barbour Machine Works, cotton gins, presses, edged-tool handles and bent-wood products; Anniston Manufacturing Co., manufacturer of cotton yarn and sheeting; Anniston Cordage Co., manufacture cotton yarn, solid braided cords, water-proof clothes lines and webbing; American Net and Twine Mill, making twine and fishing nets; Anniston Hosiery Mill; Anniston Bag & Mill Co., manufacture cotton bags in variety, also pads for horse-collars; Anniston Compress Co., 60,000 bales cotton compressed this season; Anniston Cotton Ginnery; lime works, two manufactorys, present capacity 300 barrels per day; Houser & Swain, manufacture sash, doors and blinds; Novelty Wood Works, novelties in wood; Letcher Lumber Co., manufacturer of long-leaf yellow pine; Anniston Broom Factory, manufacture brooms in great variety; Model City Mills, manufacture flour and meal; Anniston Brick Works, Anniston Marble and Stone Works, Anniston Tile Works, Anniston Tannery, Anniston Nursery, rare plants; Anniston Carriage Factory, Anniston Gas & Electric Light Co., furnishing cheap electric-power to numerous manufactorys; The Anniston Ice Co., The Alabama Ice Co., Anniston Homestead and Fruit-Growers' Associa-

ation, 8500 acres of land, being devoted to cultivation of grapes and other fruits and vegetables.

CHARLESTON'S BRIGHT OUTLOOK.

Its Commerce Steadily Increasing—Plans to Extend It.

[Special Cor. Manufacturers' Record.]

Charleston, S. C., December 7.

The outlook for Charleston is brighter than it has been for a great many years. The natural progress of events, under the fostering influence of the city's energetic citizens, are beginning to indicate to the outside world what are the possibilities of the city's future growth.

The past year, ending September 1, 1897, has shown an increase of \$8,475,132 in the business of the port. There was an increase in exports of 28 per cent., and in imports an increase of 95 per cent. It may well be said that it was a year of marvelous growth and promise. The outlook for the present year is an increase in both the export and import business over the year 1896-97.

Up to this date the Charleston Transport Line has loaded for European ports twenty-three vessels, whereas from the 1st of September, 1896, continuing through a period of eight months, they only loaded twenty-six ships in all. Besides, the twenty-three vessels loaded this year are of greater carrying tonnage than the entire twenty-six vessels loaded last season. In addition to cotton shipments, approximating 150,000 bales, the line has forwarded 450,000 bushels of grain, 75,000 sacks of flour, 1200 tons of cottonseed and 10,000 tons of iron.

Thomas Young & Co., ship agents, have handled twelve vessels since the 1st of September, as against thirteen vessels during the entire season of 1896-97. The carrying tonnage of the twelve vessels much exceeded that of the thirteen vessels loaded last year. Their cargoes have amounted to about 100,000 bales of cotton and a little upwards of 5000 tons of pig iron and some general cargo.

The Charleston City Electric Street Railway, which was completed early last summer, having bought out the franchises of the Enterprise and the City (both operated by horse-power) Railways, is one of the best-constructed and best-equipped electric street railways in the country; its tracks cover every section of the city. The need for this improved transit has been shown by the large amount of business transacted since its completion. New life has been infused into the city and the people, real estate has taken an advance, and the coming of the trolley has marked a new era for Charleston.

So well satisfied is the street-car company with its success that it is now preparing to make an extension across the Cooper river to Mt. Pleasant and to Sullivan's Island and Long Island. It has purchased the latter island, and has plans for erecting there a magnificent modern hotel as both a summer and winter resort. The island lies right on the Atlantic, and has, perhaps, the finest beach along the South Atlantic coast. It has a high elevation, and is well wooded, and there is no doubt that it can and will be made a most delightful resort by the owners of the Charleston City Railway.

The government still continues the work of erecting additional fortifications on Sullivan's Island. The two forts recently completed are thoroughly modern in their contrivance and equipped with the largest and strongest guns manufactured. There is reason to believe that within twelve months the company of

artillery recently stationed on the island

will be increased to a full regiment of from 800 to 1000 men.

The latest surveys, made about four months ago, of the government engineer in charge of the harbor improvements, indicated that the channel had attained a depth of twenty-four and one-quarter feet at mean high water. Before the lapse of another eighteen months it is confidently expected that this depth will have increased to twenty-six feet. This will enable a much larger and better class of vessels to enter the harbor. With the finest harbor on the Atlantic south of Norfolk, the upbuilding of the city's commerce is assured.

Notwithstanding the low price of cotton, the general trade of the city, both wholesale and retail, has been good, and collections much better than might have been expected from the depression in the cotton market. The outlook for a large trade in fertilizers is very flattering, and everyone feels encouraged at the promise of the coming year.

PROPHETS ARE HOPEFUL.

But Birmingham's Iron Trade Is Quiet at Present.

[Special Cor. Manufacturers' Record.]

Birmingham, Ala., December 7. The past week has developed nothing of interest in the iron trade. The current business has been small, but the summing up for November shows a better business than October. Prices are practically unchanged, and the variations, if any, are trifling. The truth is, not enough business is being done to tempt any appreciable recession in prices.

With gray forge at \$6.75 and No. 2 foundry at \$7.50 now, it would take only a limited demand to harden prices. All the prophets in the trade have an inspiration that prompts the prediction of better prices. The cool, clear-headed, calculating people in the trade, who reason from cause to effect, are inclined to the same view. The furnace men, when they realize the smallness of their stock, can't see how prices can stay down. Whether based on good or bad reasons, the faith in better prices is strong. The total stocks held by the furnaces in this district on the first of the current month was 41,000 tons, and the leading interest held two-thirds of that total. The diminution in stocks for the month of November was about 20,000 tons. This showing of stocks is the lightest since iron began to be manufactured here on a scale of importance.

The export trade is without prominent features. It is very moderate in volume and carries no significant indications. It seems to be confined to the odds-and-ends trade and filling up of holes. The market is featureless. We still have two stacks idle, for which the coke situation has been partly responsible. As that has improved somewhat of late, we may look for all the stacks in the district to be in full operation at an early date. Already arrangements are being made to fit up one furnace with the Scott patent boshes. These compose a lining with water attachments that has a much longer life than the old brick linings. If it proves satisfactory here its general adoption will follow.

The coal operators continue to report an active business and all they can manage. Arrangements are being made for the opening of some new coal mines and the preliminaries are already completed.

The rolling mills offer no items of interest this week. They are in full blast. The minor industries are in the same boat in the way of items this week.

John Featherstone's Sons, manufacturers of ice and refrigerating machinery,

dredges and a general line of machinery, have established their Southern headquarters here, with W. C. Royster in charge of office.

J. M. K.

BUILDING AT CHARLOTTE.

Business Quite Satisfactory There at Present.

[Special Cor. Manufacturers' Record.]

Charlotte, N. C., December 7. In an interview on the prospects for this enterprising and progressive city, Mr. W. S. Alexander, a leading real-estate man here, said: "Business is satisfactory. In fact, it is better than we could expect when we take into consideration the very low price at which the present cotton crop has been marketed. There is a good demand for both business and residence property, our building record for the last twelve to fifteen months requiring an outlay of from \$250,000 to \$275,000, with a ready demand for the new buildings as rapidly as completed. I think Charlotte has a bright future, as it is now conceded by the traveling public to be growing more rapidly than any city in the State, and the best business point between Richmond and Atlanta. Our system of road-building is attracting the attention of outsiders, we having now about fifty miles of fine macadamized road leading out in different directions from the city, bringing our farming lands in demand and affording good roads at all seasons of the year over which to market their products."

TO MAKE BEET SUGAR.

A Company With \$1,000,000 Capital Formed at Richmond, Va.

According to a dispatch from Richmond, Va., the Southern Sugar Refinery Co. has been organized in that city, with \$1,000,000 capital. James B. Pace is president, and T. C. Williams, vice-president. The directors include E. A. Saunders, Jr., R. S. Bosher, J. R. Williams and J. D. Patton. The company has been formed for the purpose of making sugar from beets, and to buy the product raised by Virginia farmers. As readers of the Manufacturers' Record are well aware, experiments made with the sugar beets in the State have resulted very successfully, the proportion of saccharine matter to the vegetables being considerable. The State board of agriculture and others have been agitating the question of raising sugar beets, and doubtless the factory in the city referred to will greatly stimulate the efforts of the promoters.

While this is the first company of the kind to be organized in Virginia, it will doubtless be followed by others throughout the South, as the opportunities for the cultivation of the sugar beet and the manufacture of sugar become known to the people of the various States.

According to the reports of the Department of Agriculture, a large number of counties in Virginia have conditions favorable to raising sugar beets which have a profitable percentage of saccharine matter. The result of analyses made from a number of counties show that the percentage is from 14 to 16 and over. These counties are Patrick, Henry, Pittsylvania, Halifax, Mecklenburg, Brunswick, Greensville, Lunenburg, Charlotte, Prince Edward, Nottoway, Powhatan, Orange, Madison, parts of Pulaski, Floyd, Franklin, Campbell, Appomattox, Henrico, Amelia, Dinwiddie, Sussex, Southampton, Middlesex, Mathews, Lancaster, Albemarle, Nelson, Page, Rockingham and Shenandoah.

Literary Notes.

In Simpkinsville. By Ruth McEnery Stuart. Publishers, Harper & Bros., New York and London.

Simpkinsville is a Southern community created by Ruth McEnery Stuart for the delight of man, woman and child. Ruth McEnery Stuart writes in dialect. The average dialect writer plays upon a harp with one string, and that an uncertain one. The only difference among the notes is that they are sometimes loud and sometimes faint. They become wearisome after a time, and the reading public is in arms against the dialect story. But as long as Ruth McEnery Stuart chooses to employ dialect as the vehicle of her art the dialect story will be welcomed. The reason is obvious. She is original; she is accurate. She indulges in no hysterical literary posters, for she is an artist. Her negro stories are unexcelled. The negro is a minor factor in her Simpkinsville, but that only emphasizes her resourcefulness. The book contains a number of character tales—"An Arkansas Prophet," "Weeds," "The Unlived Life of Little Mary Ellen," "The Dividing Fence," "The Middle Hall," "Miss Jemima's Valentine" and "A Slender Romance." Most of them, if not all, have appeared in Harper's Magazine, but their republication in book form, illustrated by Smedley, Carleton and McNair, will be appreciated by those who are deeply interested in the development of the Southern school of fiction.

Prang's Holiday Publications. Publishers, L. Prang & Co., Boston, Mass.

In this year's holiday publications of L. Prang & Co. many novel features have been introduced. These, added to the beauty of design, the richness of coloring and the art of workmanship, make the cards, calendars and booklets unique in their field. Among the beautiful calendars are "The Flowers We Love," "Dream Roses," "Evangeline," "Bridges Over Life's Stream," "Rose," "Fleur de Lis," "The Bachelor," "Blossom Time," "Masters of Music," "My Lady Pansy," "Violet Time," "Mizpah, the Christian Endeavor Calendar," and many others introducing separate flowers or groups of them. The Christmas cards come in various shapes and sizes, some of them being prepared to meet the happy custom of placing in the calendar and booklet boxes a tiny card with a dainty flower and a seasonable greeting upon it. This year's product surpasses all the previous output of the firm, and a feature of the publications which appeals to many persons is the fact that they are thoroughly American, all the designing, lithographing and printing being done in this country.

The Christmas number of the Home Magazine, of Binghamton, N. Y., has fiction of exceptional interest. It includes stories by Zoe Anderson Norris, Will M. Clemens, Richard Henry Savage, Anthony Gould, Elizabeth Kingsbury, Madeline S. Bridges and others.

The stockholders of the Galveston Chamber of Commerce have provided for a committee to arrange for a meeting of landowners and cultivators of the surrounding country to begin a systematic movement toward enlarged cultivation of sugar-cane, and concert of action in securing seed cane, freight rates, grinding mills and such other matters as may be deemed necessary to the successful production of sugar in the Texas Gulf coast country.

The old Kentucky Woolen Mills, of Louisville, Ky., has resumed operations. When in full operation this plant employs 275 operatives.

MECHANICAL.

The Proper Construction and Uses of Economizers.

At the meeting of the New England Cotton Manufacturers' Association, held in Philadelphia recently, the following paper was read by Mr. Henry G. Brinckerhoff, of Boston, Mass.:

"The principle of heating the feed-water in a separate vessel, quite apart from the boiler, and thereby utilizing the heat in the waste gases, is the function of flue heaters, more commonly called 'economizers,' leaving the boiler to supply chiefly the heat units necessary for the latent heat of steam. Taking the important steam users throughout the world, this is a recognized and universally adopted practice. Economizers are not only considered a necessary part of the equipment of every steam plant in Great Britain, but are in operation all over the Continent, and as well known in the spinning mills of Russia and India; equally noted among the gold mines of South Africa and the textile factories of China and Japan; while throughout the large manufacturing districts of the United States they are already extensively adopted.

"The great loss of fuel as noted between the heat value of coal and the heat taken by the water, has been observed for many years, and numerous have been the appliances to recover it, the simplest and best method claimed being to pass the waste gases on their passage to the chimney through pipes containing water, and thousands of such pipe heaters have been constructed by nearly as many makers, yet, with several exceptions, they have all failed. Disappointment has attended the result of so many economizers or flue heaters that we find that some people have become skeptical and condemn them all and state it to be impossible to build one which will last and give satisfactory results.

"The failure of so many flue heaters is attributed to three causes:

"First. Not being made of cast iron, the only practical metal to withstand the corrosive action of sulphurous gases.

"Second. Lack of capacity. It takes time to absorb enough heat to make them of practical value, hence the water should be from thirty to fifty minutes surrounded by waste heat.

"Third. Lack of automatic cleaning of pipes. Soot being a non-conductor of heat, a slight coating on a limited-capacity economizer would end its usefulness in a few hours after it had been thoroughly cleaned.

"Briefly stated, the further and most important details for a well-designed economizer should be the absence of all 'made' or packed joints inside of the brickwork.

"Second. Easy accessibility to every square inch of internal surface.

"Third. The vertical pipes should be forced into the top and bottom headers by powerful hydraulic pressure, making the joints metal to metal, which is a far superior piece of workmanship than fitting the pipes in loosely into the boxes or headers and then rusting in by the use of iron filings and salammoniac.

"Finally, applying a rigid test to each section of 350 pounds to the square inch.

"A well-constructed economizer, built under the specifications described, should last twenty years under ordinary care and attention. After it has reached that age it can be easily repaired and parts renewed so as to last indefinitely, as an umbrella retains its original individuality which has been fitted with new stick, spokes and recovered.

"The care required consists in blowing off daily at the same time as the boilers. Every three months the soot should be cleaned out of the chamber below, which at such an interval is about an hour's job. Once a year, at least, the caps should be taken off and the interior of the pipes inspected. If the water is bad this should be done oftener. There is no reason why the scraper mechanism should not run smoothly for years. This used to be a troublesome point with some of the early makes of economizers.

"The general use of compound-condensing engines in modern steam plants has enlarged the field and extended the use of economizers, as the exhaust steam is not available for heating feed-water except to a limited degree.

"A common practice some years ago was to take a portion of the exhaust steam for heating feed-water, obtaining thereby a temperature of about 210 degrees, while with the compound-condensing engines it is not generally feasible to get much over 130 degrees, thus mak-

ing water impurities in the economizer, many impurities not being freed from the water until a high temperature is reached. This fact, and the slow movement of water in the economizer, is the reason that this apparatus removes so much more foreign matter from the feed than the other types of heaters.

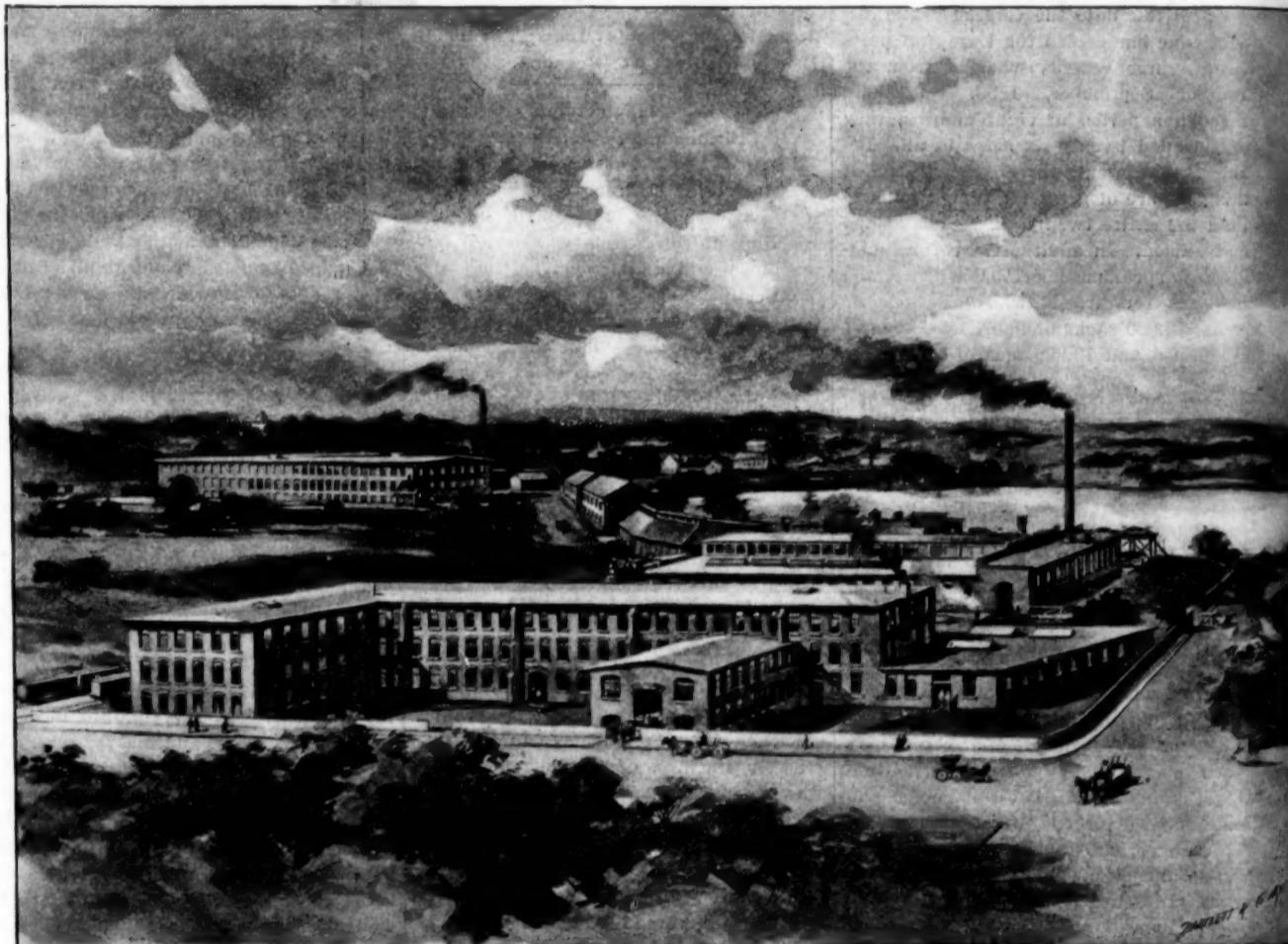
"Sixth. The economizer is especially desirable where the work fluctuates. A large amount of power suddenly withdrawn drops the boiler pressure, while fresh coal in the furnace and cold feed-water entering the boilers make matters worse, a condition frequently observed in bleacheries and electric plants. Gauge pressure is seldom observed to drop when an unusually large amount of feed-water is being forced into the boiler, where it has been previously heated in an economizer.

"Seventh. Any use hot water can be put to in processes of manufacture can be obtained free of cost by drawing the pure hot water from the economizer; particularly bleachers and dyers take ad-

of course, there has been a steady evolution and improvement in such work. The first cards built were of the 84-flat pattern, with the wide flats and wood lining between cylinder and arch. A few years later the improved pattern card, with 100 flats, was brought out. Recently, a card, far in advance of any of the others, has been put upon the market, with 110 flats, a doffer twenty-seven inches in diameter, and other valuable patented improvements.

This year the Pettee Company has placed upon the market a card forty-five inches wide, an increase in width of five inches over the regular width. This size of machine is being used very extensively in England and gives a large increase in product and a saving in cost of labor. The English machine makers are building more of this wide pattern of card than any other, and the latest mills, including the Bolton fine mills, are using them on their finest numbers.

It requires no more help to take care of a room full of 45-inch cards than of 40-



PLANT OF THE PETTEE MACHINE WORKS.

ing a direct loss in economy for the compound plant, as compared with the older ones, to the extent of 7 to 10 per cent. of all the coal consumed, offsetting by that amount the gain obtained by compounding, whereas the higher temperature of the steam demands a higher temperature of feed-water, instead of lower, for the proper efficiency and durability of the boiler.

"The advantages of the economizer may be summarized as follows:

"First. It is a genuine saving of fuel expenditure by recovery of heat otherwise totally lost.

"Second. It increases the capacity of the boiler plant.

"Third. It saves repairs to the boilers by relieving them of much of the strain of expansion and contraction caused by colder water entering the boilers and mingling with the hotter contents.

"Fourth. It prolongs the life of the boilers for the same reason.

"Fifth. It saves much cleaning of the boilers, thereby increasing their efficiency because of the precipitation of feed-

vantage of this opportunity for their kiers and dye tubs. Where mills are heated during the winter by hot water, a part of the economizer can be included in the circulating system, supplying the heat necessary entirely by the waste gases. This has been done by some large mills, the Grosvenor-Dale Company, a good representative of our New England textile mills, being one of them.

"In conclusion, I may say it is the general opinion of those owning economizers, and others having them in their charge, that it makes easy working conditions in the boiler-room."

The Pettee Machine Works.

The steady increase in the spindles and looms of the South makes of much interest the illustration of the plant of the Pettee Machine Works, Newton Upper Falls, Mass., where it is claimed the first revolving flat cards ever built in this country were made. This company has made a great success of the machines and its sales have been unusually large.

inch cards, and the production of the former is 12½ per cent. greater than the latter.

This, however, is but one branch of the cotton-machinery art. Improvements in one department always involve improvements in others.

Railway heads and drawing frames are so closely connected with cards in the organization of a mill that the Pettee Company soon put itself in a position to furnish these machines also. Special attention was given to making machines adapted for use in connection with the revolving flat card, and these have proved, the makers say, to be much superior to the ordinary railway heads and drawing frames used as auxiliary in old-style carding.

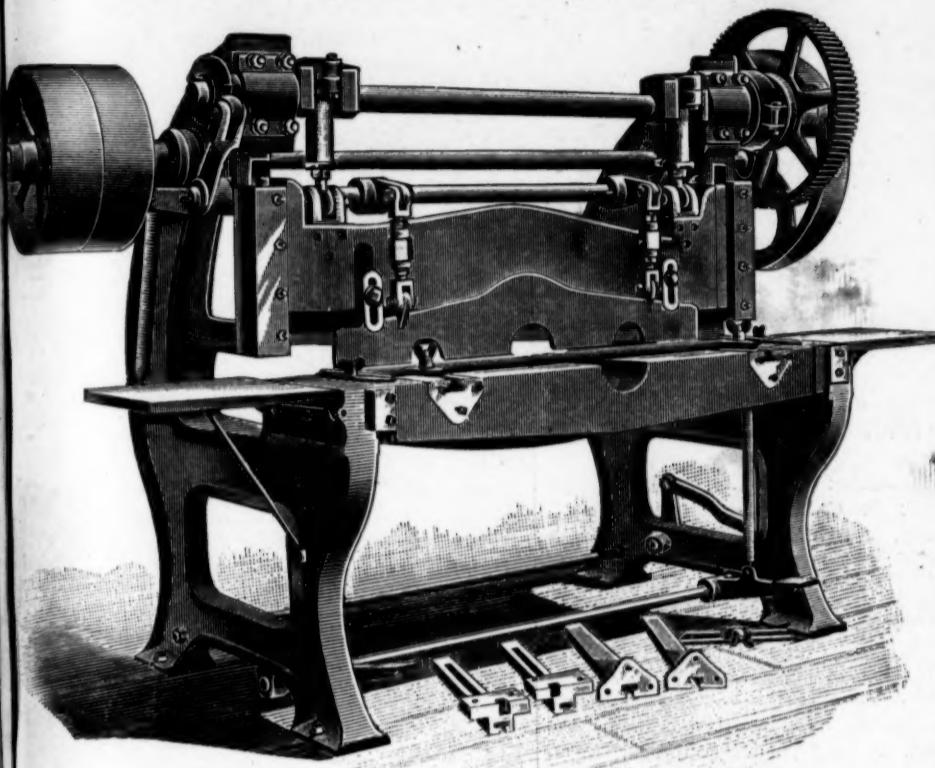
Reference may here be made incidentally to the conditions involved in the steady aim and policy of the Pettee Machine Works to elevate the standard of work in carding machinery and to give to cotton manufacturers machines that are of the best material and workmanship. Arrangements are now being com-

pleted to consolidate the Pettee Machine Works with the Saco Water-Power Machine Shop, of Biddeford, Me. This latter company has made a specialty of roving frames and spinning machinery, and enjoys a high reputation on these products.

The new corporation, which is to be called the Saco & Pettee Machine

Tenon Machine.

This newly-designed, extra heavy No. 3 tenon machine, with double heads and two copes, is presented to the planing-mill trade as having superior advantages and conveniences for sash and door work, planing mills and other general woodworkers.



POWER GAP SHEARS.

Shops, with main office at Newton Upper Falls, Mass., and works at Newton Upper Falls, Mass., and Biddeford, Me., will be able to furnish a complete equipment of machinery for a cotton mill, with the exception of the weaving machinery.

James H. McMullan, the present agent of the Saco Water-Power Machine Shop, will be president of the new concern, and the management will be under the present managers of the Pettee Machine Works, Mr. R. P. Snelling, treasurer, and Mr. F. J. Hale, agent.

Power Gap Shears.

The improved power gap shears are made by the Niagara Stamping & Tool Co., of Buffalo, N. Y. This is an improved line of power gap shears, suitable for cutting soft steel and iron up to one-eighth inch thick. The housings have a gap or open throat fifteen inches deep, which permits of trimming sheets of any length and cutting them apart up to fifteen inches from the edge. The driving mechanism of the improved shears is put overhead, instead of underneath the bed, as formerly. This construction possesses the advantage that the belt will not close up the gap, particles of grit and scale that may come off from the material while being cut cannot drop into the working parts, and the gap arms that were a necessity in the former construction have been done away with.

The crosshead, with upper knife, is operated by means of a double crank-shaft made of forged steel. In front of the crosshead there is an automatic-working hold-down attachment, driven by means of cams and levers from the main shaft. This hold-down attachment travels ahead of the crosshead, and it holds the sheet firmly upon the bed while being cut. The motion is controlled by the Niagara clutch, which is positive, and of simple construction. The illustration shows a machine that will cut and square fifty-two inches. Other sizes are made up to ten feet long.

The frame is cast whole, the main part being on a pedestal, and it stands more solidly than a machine on which the legs are bolted.

It will cut tenons from one-quarter to seven inches long, and the heads can be adjusted to any thickness.

The mandrels are of steel, and run in

strong. It is easily and quickly handled, and has an extension bar with two stops adjustable to any length of tenon. The swinging support for the outer end of table is of the latest improvement, and is arranged so that the operator can walk clear beyond the heads in cutting the tenon. On wide tenons this is a great advantage, as the operator can follow up and does not lean over so much.

The table is gibbed on under side of slide next to frame, and by no possible accident can it be thrown into cutter-heads, and the outer end being on a swiveled roller, the motion is far easier and steadier than if made in any other way. The end of the table near the heads runs on rollers, making the movement of the table very perfect and very easy on the operator.

The upper cutter-head, with its mandrel and frame, can be moved laterally so as to cut longer tenons than the lower if wanted. Saw spurs are used on heads, and the shear cut made by these heads is first-class. The cope-heads can be adjusted both ways, and are driven with very long belts, thus preventing all slippage or falling off of belts.

The main driving belt runs between boxes and has full clearance, and can be made endless, as the tightener holds it always taut, and keeps it so closely hugged to spindle pulleys that there is no slipping, even when doing the heaviest kind of cutting.

The tight and loose pulleys are 10x4½ inches, and should run 800 revolutions per minute.

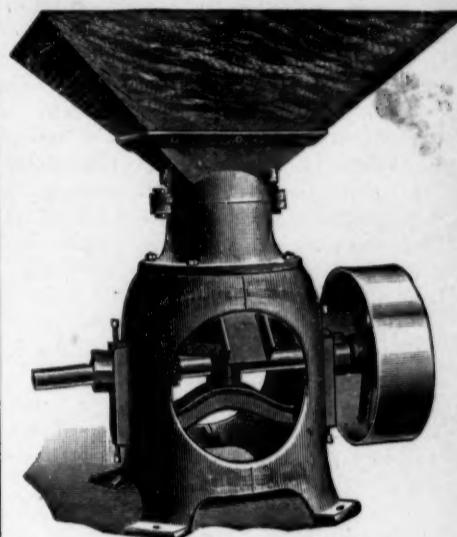
For prices or further information address the Egan Company, of Cincinnati, Ohio.

Corn and Cob Crusher.

The Little Wonder corn and cob crusher has been on the market for a considerable time, and enjoys a popularity for its efficiency and rapid and fine work. This machine handles corn in the

Attached to the spindle is a nut or grinding pot, and in this nut there meshes a rigid ring with teeth that is bolted to the frame of machine. These grinding parts are made of chilled iron, and by their improved shape insure a large capacity. On either side of the outside bowl or frame is a set screw for raising and lowering the breaking or crushing parts.

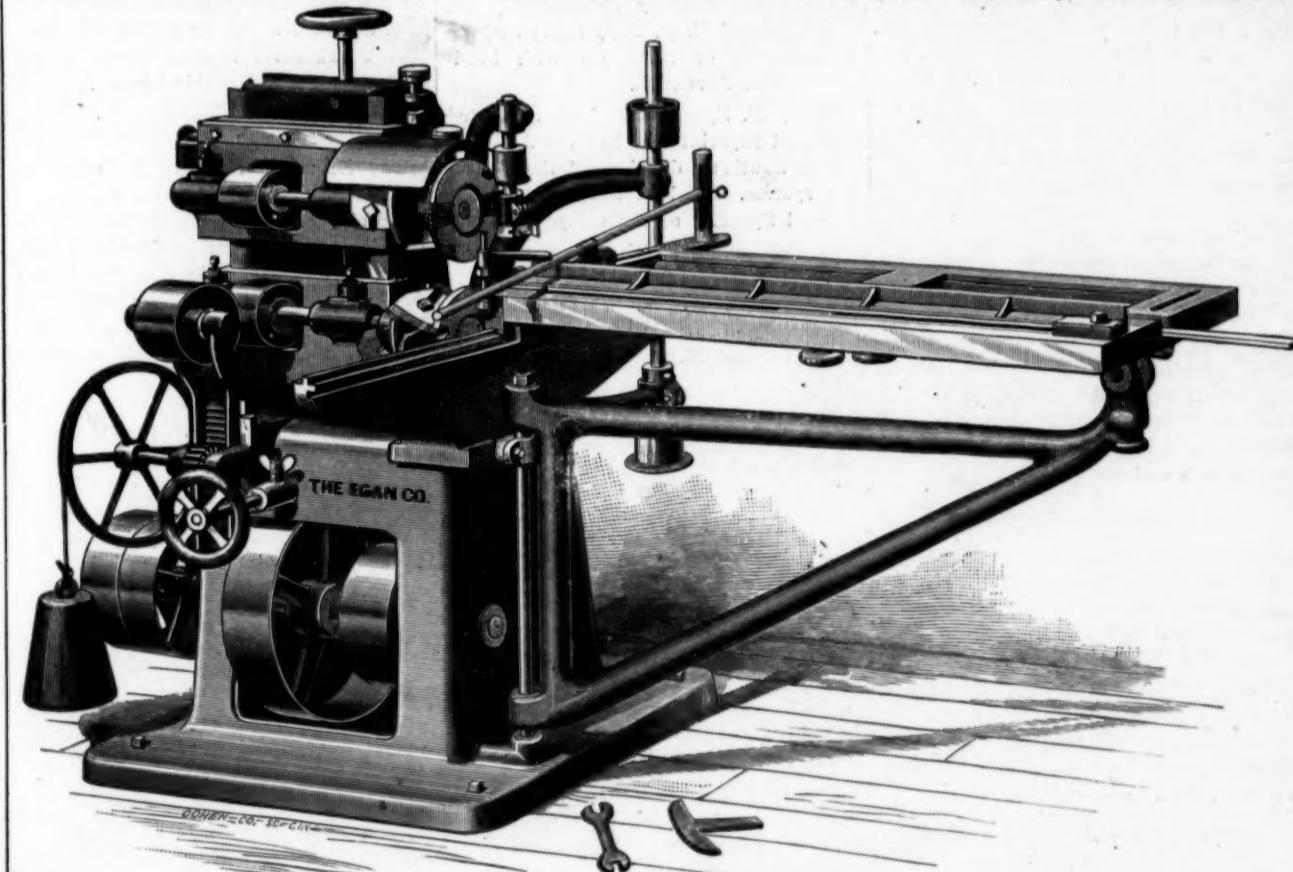
Two sizes of this crusher are built, ranging, respectively, for capacities from thirty to sixty bushels per hour, which depends upon the speed at which they



CORN AND COB CRUSHER.

are driven and the fineness of the product desired. They are all complete, with hopper and drive pulley on the countershaft, and all the setting required is simply to bolt the four legs to the floor, attach belt to power shaft and pulley on machine.

These crushers are sold by B. F. Starr & Co., Baltimore, Md., mill furnishers and contractors of flouring-mill machinery and supplies. In addition to building and equipping flour mills with roller-process machinery, this firm manufac-



NO. 3 TENON MACHINE.

self-oiling boxes, and the lower half of box being cast on the mandrel frame or yoke, makes a very reliable bearing. Tightening the caps or boxes takes out all end motion or vibration on the heads, thereby causing them to do smooth and perfect work.

The table is light and very stiff and

ear, breaking it to any desired fineness for subsequent grinding into feed and cornmeal. The mechanical features are simple.

Connected to the countershaft, running through the frame, and to the spindle (set in an upright position) is a pair of bevel gears in the proportion of 3 to 1.

tures and furnishes portable mills, containing French burrs that they import direct from the quarries in France, and Esopus and Brush Mountain stones, which outfits are designed for grinding grain into feed and meal, paints in oil, phosphate and cement rock, fertilizer, roots, herbs and all hard substances.

RAILROAD NEWS.

[A complete record of all new railroad building in the South will be found in the Construction Department.]

IMPROVEMENTS AT PORT ARTHUR.

The Ship Canal and Steamship Lines.
New Saw Mills on the Kansas City, Pittsburg & Gulf.

Rapid progress is being made on the terminals of the Kansas City, Pittsburg & Gulf Railroad at Port Arthur, also its ship canal to deep water. An official of the company, in a letter to the Manufacturers' Record, states that about one and a-half miles of the canal have been completed, and that five and a-half remain. A dredge is working on the excavation day and night. When this canal is completed, ocean steamships of large size can come to the wharves of the company and be loaded without the aid of lighters. Three piers have been built into Sabine lake, from which freight can be carried by lighters to the steamships until the canal is completed.

As already stated in the Manufacturers' Record, the expenditures for terminals, etc., will be about \$2,500,000. One of the principal improvements will be the dry-dock, which is to be 500 feet long. This will be large enough to enclose the largest steamships plying on the Gulf of Mexico. Contract will be let for the dry-dock after the ship canal is completed. The steamship routes in connection with Kansas City, Pittsburg & Gulf include two lines to be operated by the Atlantic, Mexican & Gulf Steamship Co. One line will run between Port Arthur and Tampico, Vera Cruz and Progreso, Mexico, while the other will connect Port Arthur with Cuba, Jamaica and the other West Indian Islands. The first steamship in the Mexican line left on December 5. This was the *Helios*, which will be followed by the steamship *Uto* on December 25. Contracts have been closed for the line between Port Arthur and Liverpool direct, the first vessel of which will sail from this country on December 25 also. The importance of the city as a seaport has attracted the firm of Joseph de Poort, of Rotterdam, Holland, which has established an agency at Port Arthur.

As an indication of the development of the lumber interests caused by the building of the Kansas City, Pittsburg & Gulf, the same official is also authority for the statement that sixty saw mills have been built along the line within the last year. These mills have a combined daily capacity of 400 carloads, and are cutting long and short-leaf pine, as well as oak and walnut.

May Build in Alabama.

According to a dispatch from Birmingham, Ala., the Illinois Central Railroad Co. has been making surveys for a line from Aberdeen, Miss., to coalfields in Marion and Walker counties, Alabama. There is also a report that the Illinois Central will build a line to Nashville, Tenn., utilizing the roadbed which was partly built several years ago between Decatur, Ala., and Nashville.

Pullman Service in the South.

Arrangements have been made for a line of through cars between St. Louis and Jacksonville, Fla. The services will be operated over the Illinois Central, Kansas City, Memphis & Birmingham, the Central of Georgia and the Plant system.

A Pullman car service has also been arranged between Charleston, S. C., and St. Louis by way of Aiken and Summerville, S. C., and Augusta, Ga. The

companies interested in the surveys are the Louisville & Nashville, Nashville, Chattanooga & St. Louis, Western & Atlantic, Georgia Railroad and the South Carolina & Georgia. This will give Charleston a direct connection with the North and West without change of cars.

Norfolk Railway Purchasers.

The company which recently purchased the Norfolk Street Railway system has organized, and has elected the following officers: President, Frank O. Briggs, of Trenton, N. J.; vice-president, W. H. Doyle, of Norfolk; secretary, H. C. Whitehead, of Norfolk. The directors consist of J. W. Middendorf, Robert C. Davidson and Charles R. Spence, of Baltimore; Frank O. Briggs, of Trenton, N. J.; Wm. Habliston, of Petersburg; R. L. Williams, of Richmond; R. P. Cook, W. H. Doyle and J. P. Andre Mottu, of Norfolk. As already stated in the Manufacturers' Record, the company intends obtaining additional rolling stock and making other improvements to the line.

Charleston's Fruit Business.

The steamship *John Wilson* recently arrived at Charleston, S. C., with one of the largest cargoes of fruit ever brought to this country. The cargo consisted of oranges, bananas and cocoanuts. There were 1,000,000 oranges, 100,000 cocoanuts and 5000 bunches of bananas. The cargo is one of a number which are being received at Charleston, the bulk of which goes to the North and West by the way of this port.

Railroad Notes.

B. F. Merritt has been appointed soliciting freight agent of the Central of Georgia Railway Co.

H. C. Mayo has been appointed advertising agent for the Southern Pacific road, with headquarters at New Orleans.

The Plant Railway & Steamship Co. has appointed F. B. Papy agent and superintendent of terminals, with headquarters at Savannah.

Henry P. Spencer has been appointed assistant superintendent of the Alabama Great Southern division of the Southern system. He is a son of President Samuel Spencer, of the company.

At the annual meeting of the Mobile & Montgomery division of the Louisville & Nashville, A. De Bardeleben was elected president; M. H. Smith, vice-president, and M. H. Newbold, superintendent.

The Kansas City, Memphis & Birmingham Railroad has carried nearly 10,000 head of cattle from Alabama within a month. They are to be fattened on grazing lands in Texas and Kansas, then placed on the market.

A dispatch from Chicago states that the Illinois Central Railroad Co. hauled into New Orleans between September 1 and November 15 nearly 4,500,000 bushels of grain more than during the same period last year, notwithstanding the interruption to business caused by the yellow fever.

The first cargo of cotton which has ever left a Mississippi seaport was shipped on December 3 by steamer *Cape Charles*. It consisted of 2500 bales, and was sent out of Gulfport, Miss. The completion of the Gulf & Ship Island Railroad to this point has made it a market for Mississippi cotton.

The Florida East Coast Railroad Co. announces that it will begin its service between Miami, the southern terminus of the road, and Nassau, in the Bahama Islands, on January 17. About three trips weekly will be made by the steam-

ship Miami, recently completed by the Cramp Shipbuilding Co. for this purpose.

The Seaboard Air Line announces that it will allow each passenger 300 pounds baggage free over its road. This is double the allowance which has heretofore been made, and will be of great advantage to traveling salesmen and theatrical people, who usually are obliged to transport a large quantity of baggage.

From September 4 to November 28, inclusive, the Baltimore & Ohio handled 80,000 people on Sunday excursions between Philadelphia, Baltimore, Washington and Atlantic City, and owing to the care taken in the handling of the trains not a single passenger was killed or injured. Fourteen thousand of this number were handled on September 4.

The Baltimore Security & Trading Co., which now controls the Columbia & Maryland Electric line, has elected the following directors: Henry A. Parr, Thomas J. Heywood, Nicholas B. Bond, of Baltimore; Henry P. Scott, of Wilmington, Del.; Oscar T. Crosby, of Washington; Chas. A. Leib, of New York; S. C. Cooper and Francis K. Carey, of Baltimore.

Steel Rails for India.

The sailing of the steamship *Sahara* from New York is the beginning of a new service direct between that city and India. This vessel is one of a line which will make regular trips between the ports. A large portion of the cargo consisted of steel rails for an East Indian railroad, made by the Maryland Steel Co. at Sparrow's Point. In spite of the fact that the company was obliged to make this shipment by way of New York, it was enabled to make a rate which could not be met by European rail plants, and thus secured the order. It is a noteworthy feature that this steamship line is obliged to depend upon a Maryland concern for a portion of its outbound business, and indicates the opportunities for the extension of Baltimore's commerce if more goods for export were sent from this seaport.

Baltimore Grain Cargoes.

The Board of Trade of Baltimore at its last meeting considered the report of a special committee appointed for the purpose on the question of winter load lines of steamships leaving Baltimore. According to this report, only one vessel which left Baltimore between October 1, 1895, and April 1, 1896, was lost at sea, although 179 cargoes of grain were shipped from this port. Out of 349 grain cargoes loaded at Baltimore between October 1, 1896, and April 1, 1897, only two ships were lost. These figures, it is claimed, are sufficient to prove that the load line allowed by the British Board of Trade is reasonable and safe.

An Important Enterprise.

In a letter to the Manufacturers' Record the Virginia Tanning & Extract Co., of Big Stone Gap, Va., states that it has made arrangements to build tannery on a tract of 165 acres of land which it has recently purchased. The tannery will turn out oak sole leather. The plant will include works for the manufacture of extract, which will have a capacity of 10,000 pounds daily. The tannery will use from 7500 to 10,000 cords of bark annually, and will employ about sixty men. About \$100,000 will be invested in the enterprise.

There has been an increase in the taxable basis of South Carolina during the past year of \$1,783,936 personal, \$896,001 real and \$288,971 railroad, a total of \$2,968,908.

LUMBER.

[A complete record of new mills and building operations in the South will be found in the Construction Department.]

LUMBER MARKET REVIEWS.

Baltimore.

Office Manufacturers' Record, Baltimore, Md., December 9.

The volume of business in every department of the local lumber trade has shown very little expansion during the past week and the demand is not so decided as the year draws to a close. Receipts of yellow pine have been fair, and in air-dried lumber stocks at the moment are fully ample for all requirements. The week's business in air-dried lumber has been confined to the movement of small lots for immediate use; kiln-dried North Carolina is selling freely and both the domestic and foreign demand is improving. In white pine the market is fairly active, with prices steady for most grades, while stocks are fully equal to the demand. There is some business in hardwoods and the domestic trade is better, while for export there is a light business in progress.

Charleston.

[From our own Correspondent.]

Charleston, S. C., December 6. The lumber market during the past week has been quiet, with a steady tone to prices. The demand from both domestic and foreign sources is limited, although at nearly all milling sections adjacent to the city there is considerable lumber being shipped. There has been a better demand recently for shingles, and also for crossties, several cargoes of the latter being closed last week. Prices at the close of the market on Saturday last were reported as follows: Merchantable lumber, \$14 to \$16 for city-sawed, \$12 to \$14 for railroad; square and sound, \$9 to \$13 for railroad, \$8 to \$11 for raft; dock timber, \$4.50 to \$6.50; shipping, \$8.50 to \$10.50. There is a fair inquiry today for shingles, and prices are firm at \$4 to \$7 per thousand. The schooner *Leander V. Beebe* cleared last week for New York with 550,000 feet of lumber, and the steamship *Comanche* with 29,750 feet of lumber among her cargo. The total shipments of lumber from this port from September 1, 1897, to December 3, inclusive, amount to 9,939,585 feet domestic and 275,000 foreign, making a grand total of 10,214,585 feet, against 15,035,814 feet. Lumber freights are very low, rates to New York being still quoted \$4.38 to \$4.50; wet ties to Perth Amboy, 15 cents each, basis forty-six feet; switch ties, \$3.75, and lumber, \$4.50; dry railroad ties to New York, 11½ cents, basis thirty-six feet; lumber to Fall River, \$4.50. Among the charters reported in New York last week were the following: Schooner *James Boyce, Jr.*, 626 tons, from Charleston, S. C., to New York with crossties at 14½ cents, coal out from Norfolk \$1.05, and schooner *Anna E. Ketchum*, 371 tons, from Charleston, S. C., to Philadelphia with oak ties at 18 cents, coal out 80 cents.

Savannah.

[From our own Correspondent.]

Savannah, Ga., December 6. Business in nearly all lines of the lumber trade last week was fairly active, and the market generally firm, with a good steady demand. The movement in crossties is good, and there is quite an active development in this branch of the industry. At all milling sections in this part of the State trade is reported very fair, and mills are generally working their full forces, having orders sufficient

to keep them employed. Shipments of wood products from all the Georgia ports are better than at the same date last year, while prices for all desirable material show a higher range of value. At the close of business on Saturday last the market showed the following quotations: Ordinary sizes, \$10.50 to \$11; difficult sizes, \$12 to \$14; flooring boards, \$15 to \$17; shipstuff, \$14.50 to \$18, and sawn ties, \$9.50. During the past week the following clearances were reported: Schooners John C. Schmidt with 345,050 feet of pitch-pine lumber, and the Horace P. Shares with 318,753 feet for Philadelphia; schooner Carrie T. Belano for Boston with 412,000 feet, and schooner Fannie Arthur for Philadelphia with 10,401 crossties measuring 464,145 feet. New York steamers carried out 359,604 feet of pitch-pine lumber, Boston steamers 54,157 feet and Baltimore steamers 120,391 feet. The foreign demand is light. Freight on lumber and timber are steady, with rates unchanged. The rates from this and nearby Georgia ports are quoted at \$4 to \$4.50 for a range including Baltimore and Portland, Me. Railroad ties, basis forty-four feet, to Baltimore 12 cents; to Philadelphia, 13 cents, and New York 13½ cents. Among the charters reported last week in New York were the following: Schooner W. H. Sumner, 543 tons, from Brunswick to New York with ties on private terms, and schooner Thomas A. Ward, 765 tons, from Savannah to New York with ties at 14½ cents, fertilizer out at 90 cents.

Jacksonville.

[From our own Correspondent.]

Jacksonville, Fla., December 6.

The record of business in all the avenues of the lumber trade of this port for the month of November was highly satisfactory to both manufacturers and shippers, and the demand for lumber has been active. Not in many months has the shipments of wood products been of such liberal volume, and the outlook for the present month is very encouraging. The total shipments of lumber for November amounted to 10,847,017 feet, of which 9,723,665 feet was yellow pine and 562,000 feet cypress coastwise, while foreign shipments of yellow pine amounted to 842,630 feet. These figures show a marked increase in the lumber shipments from this port. The increase over September of this year is 2,673,796 feet, and over the shipments of October the increase was 1,652,228 feet. The other coastwise shipments were 32,276 crossties and 1,174,000 shingles. The Clyde Line steamers have had an excellent business in lumber during the month, as well as in a general way. The steamships Algonquin, Seminole and Comanche cleared three times each, the Iroquois twice and the Pawnee and Delaware once each, carrying out over 3,000,000 feet of lumber. During the month the various saw mills in this section have been unusually active, running up to their full capacity in order to fill their bills. The crosstie industry has also been very active, and the demand is quite steady for desirable lots, with prices firm. There is a good inquiry for shingles, and stocks at the moment are not large, the bulk of the output being quickly taken. The first cargo of lumber ever shipped to Europe went out last week in the Danish bark Erna for Liverpool, and consisted of 300,000 feet, the Atlantic Coast & Export Lumber Co. being the shippers. The same company is now loading the Danish bark Union with 550,000 feet of lumber for Manchester, England. This is the first of a series of shipments which will be made to Europe from this port. The schooner

Cactus cleared on the 1st with 428,000 feet of lumber for Portland, Me., and the schooner Penobscot for Jersey City with a cargo of 285,000 feet of lumber. The schooner Mary F. Godfrey was chartered in New York on the 2d inst. to load here with kiln-dried lumber for Philadelphia on private terms.

Mobile.

[From our own Correspondent.]

Mobile, Ala., December 6.

A marked improvement is everywhere evident throughout the lumber and timber industry of this port, and in all avenues of the market there is a pronounced activity, after the long spell of quiet trade prevailing. The demand for timber is better, and for sawn timber the market is firm at 10½ to 10¾ cents per cubic foot, 40-foot basis. For hewn timber the inquiry is light and stocks considerably reduced. The demand for cypress timber is steady at 5 to 8 cents per cubic foot, according to the average. Saw logs are in fair demand at \$5 to \$7.50 per thousand delivered at mill. The lumber business is decidedly better, there being a good demand from the usual sources. During the past week over 1,000,000 feet were shipped, nearly 500,000 feet going to Cuba, 511,354 and 25,000 feet to Liverpool. The bark Adolf cleared for Liverpool last week with 16,359 cubic feet of sawn timber, 34,608 cubic feet of hewn timber and 18,329 feet of lumber. Freights on lumber are steady and unchanged; to the West Indies, \$6 to 7 per M; coastwise, \$5.25 to \$6; Cuba, \$6 to \$7; River Plate, \$11 to \$12, and Mexico, \$7 to \$9. Timber and lumber by steam to United Kingdom and Continent, £5 10s. to £5 12s. 6d. per standard; by sail, hewn timber per load, 31s., and sawn timber £5 per standard.

Lumber Notes.

The saw mill of the Calcasieu River Lumber Co. at Oakdale, La., is now in good shape and running regularly.

The Oxley Stave Co., of Poplar Bluff, Mo., having a capital stock of \$100,000, was last week granted permission to do business in Texas.

The Mills Manufacturing Co., of Raleigh, N. C., shipped last week from the wagon works a large consignment of spokes to Liverpool, England.

The Mutual Lumber Co., of Meridian, Miss., made a shipment on the 3d inst. of 220,000 feet of pine timber to Daniel Foley, street and sewer contractor, Indianapolis, Ind.

Messrs. J. O. Kilpatrick & Son, of Nashville, Tenn., have purchased the saw mill and lumber business of A. E. Baird, of that city. The firm will do a general planing and lumber business.

The axe-handle factory of Leathers & Co., at Dickson, Tenn., is about completed, and the firm expects to start up at once. The section in which the plant is located abounds with select timber for the purposes of the firm.

The stock of the Florence Buggy Co., at Florence, Ala., was sold on the 1st inst. to B. P. Larrabie, formerly secretary and treasurer of the company. The factory will continue to do business with Frederick Fisher as manager.

The large saw mill of Lewis & Co., on Elk river, near Fayetteville, Tenn., is now in full operation sawing 50,000 feet per day. The firm is composed of Lewis, Hiller and Goodrich. Their plant is one of the best equipped in the South.

The Ganahi Planing Mill & Manufacturing Co., of St. Louis, was granted a charter last week, with a capital stock of \$20,000, of which 60 per cent. is paid.

The incorporators are H. T. Buescher, J. J. Ganahi, L. J. Ganahi and T. C. Ganahi.

The Gulf & Ship Island Railroad at Gulfport, Miss., in order to handle lumber in large quantities with dispatch, has adopted the plans of the Spellman patent hoist. By this method a car of lumber can be transferred to the vessel very rapidly.

The plant of the Benjamin Butterfield Co., near Riverview, Tenn., was sold last week by H. C. Beck, trustee, to the Chattanooga Company, Limited, for \$1000. It is understood that the plant will be resold in the near future and placed in operation.

Mr. John L. Gay, of Suffolk, Va., has just purchased the plant and property of the Kinston Lumber Co. at Kinston, N. C., consisting of a saw mill and planing mill well equipped and about 35,000,000 feet of lumber on the stump. The plant will soon be put in operation.

The lumber firm of J. C. Jackson & Sons, of Talladega, Ala., are preparing to move their saw mill to the city, where their planing mill is now located. The firm will build a private logging road six miles long, which will tap one of the finest bodies of timber in the State.

At Long Leaf, La., business in lumber and timber shows much activity. Messrs. Cromwell & Spencer, of that place, are running their planer twenty-two hours out of twenty-four in order to dispose of their numerous contracts on file. This firm is also running its saw mill on regular time.

The shipments of lumber and timber from Sabine Pass, Texas, for the month of November amounted to 4,199,061 feet, and for the ten months preceding, 56,834,561 feet, which, with December shipments, estimated at 5,000,000 feet, the total for the year 1897 will amount to over 66,000,000 feet, against 28,945,301 feet for 1896.

The Perkins & Miller Lumber Co., at Westlake, La., has been receiving numerous orders during the past week, and is running both mill and planer getting out stock, much of which is for export. Among other large concerns at Westlake, the W. B. Morris cypress mill is making regular time; Lock, Moore & Co.'s planer and saw mill are being run to their full capacity.

The Atlantic Coast & Export Lumber Co., of Jacksonville, Fla., cleared the bark Erna for Liverpool, England with 300,000 feet of lumber, and is now loading the bark Union at that port for Manchester, England, with 550,000 feet. Other shipments from Jacksonville last week were 428,000 feet of lumber by the schooner Cactus for Portland, Me., and the schooner Penobscot with 285,000 feet for Jersey City.

A deal was closed last week at Texarkana, Texas, between the Little Rock Cooperage Co. and the Texarkana Cooperage Co., whereby the former becomes sole owner of the Texarkana plant. The Little Rock Cooperage Co. has purchased additional land, and will at once proceed to erect new buildings to accommodate the machinery for the manufacture of barrels. The plant will turn out, when in full operation, 500 oil barrels per day, besides other barrels and cooperage material for export.

The East Coast Cedar Co. was incorporated last week at Raleigh, N. C. Its capital stock is \$50,000, with privilege of increasing to \$300,000. The incorporators are William T. Parker, Harry F. Siddon and Frank M. Wingman, all of Philadelphia. The company will manufacture and sell lumber and other wood products

and will operate in Pasquotank, Dare, Tyrrell and counties in Central and Western North Carolina, with offices in Elizabeth City and Raleigh, and making shipments to New York and Philadelphia.

The annual meeting and election of officers of the Baltimore Lumber Exchange was held on Monday last at the Builders' Exchange. The following officers were elected for the ensuing year: President, Lewis Dill; vice-president, Henry R. Duker; treasurer, Louis C. Roehle; managing committee, E. B. Hunting, F. E. Waters, R. V. Price, S. P. Ryland, Jr., James W. Knowles, Jr., Wm. M. Burgan, P. M. Womble, J. L. Gilbert, William V. Wilson, Jr., William D. Gill, Jr., John Bruns and Norman James.

It is stated that Messrs. J. Clark Thwing, of Grand Rapids, Mich., and W. P. Adams, of Chicago, visited New Orleans last week prospecting for a location for a lumber plant. It is the intention of a syndicate to establish a large plant at or near New Orleans, which will not only engage in the export of lumber to foreign ports, but also in the manufacture of hardwood lumber products and veneering. Messrs. Clark and Adams represent the syndicate, but have not yet completed their plans, and it is safe to say that a very large and extensive plant will soon be added to the lumber industry of New Orleans.

The Campbell & Dann Manufacturing Co., of Tullahoma, Tenn., is now completing its new plant for the manufacture of carriage and wagon shafts, poles, singletrees, rims, etc. The buildings are located on a six-acre tract, with railroad facilities, main factory being 50x150 feet in size, two stories high, steam kilns (two) 14x28 (Progressive), warehouse 40x100 feet, boiler and engine-house separate, with 100-horsepower engine and 125-horse-power boiler installed, saw mill of 50,000 feet daily capacity, and from thirty to sixty men are employed. Mr. J. L. Dann is manager of the enterprise, and is from Columbus, Ohio, where he was associated in this business for some years. E. W. Dann, also from Columbus, and M. R. Campbell, of Tullahoma, are also in the company.

Northern Visitors to the South.

A number of Northern parties have recently been making a tour of the Piedmont section of the South under the guidance of M. V. Richards, of the Southern Railway Co. The party included the following gentlemen: E. Naumberg, of Naumberg, Lauer & Co., bankers, New York; John P. Townsend, president of the Bowery Savings Bank, New York; S. M. Millikin, of Deering, Millikin & Co., commission merchants, New York; J. W. Danielson, treasurer of several Eastern cotton mills; W. F. Millikin, wholesale grocer, Portland, Me.; Wheeler Smith, architect, New York; John J. Sinclair, contractor; A. W. Green, merchant, New York; Edwin Green, capitalist, New York; William V. Brokaw, wholesale and retail clothing, New York; G. H. Hackett, of Hackett, Carhart & Co., wholesale clothiers, New York.

A number of the principal cotton mills in the Carolinas were visited, also the cities of Charlotte, N. C., Chattanooga, Tenn., and Spartanburg, S. C. Several of the visitors are already interested in the textile industries in the South.

During the past eleven months permits for the erection of new buildings to the value of \$168,126 have been issued at Birmingham. This is an increase of \$95,630 over the same period in 1896.

COTTONSEED OIL.

This department is open for the full and free discussion of trade topics and practical questions, and contributions are invited from men who are identified with this industry. Items of news are always acceptable.

The Market for Cottonseed Products.

New York, N. Y., December 9.

The prolonged dullness in the cotton-oil market has given place to a decided improvement, and with more favoring ocean freight rates an active export trade would obtain at ruling prices. The weakness which was a feature of the market for several weeks is no longer apparent, and it would appear as if we were on the eve of an upward movement in prices. The increased domestic consumption of cotton oil has also contributed to placing the market on a better footing, while the interest displayed in the article by foreign consumers, referred to in our last, has developed to a point at which purchases cannot be much longer deferred, and with the probability of an advancing cotton-oil market in the near future it is certain that supplies for future delivery will be contracted for in appreciable quantities before the year closes. Lard is still unsettled, and, with the plentiful hog supplies at the chief packing centres, the outlook for an early improvement in values is not encouraging. In view of these conditions, the independent position of the cotton-oil market in gathering strength from outside sources, irrespective of lard fluctuations, will at once reveal the standing the article has in the world of trade distinctly on its merits as an edible and commercial product generally. Lard is quoted at 4.25 cents, Chicago, January options. Tallow is strong at 3½ cents, and as there are no accumulations the outlook for higher prices for this article would appear promising. Current trade happenings in other lines are, therefore, decidedly favorable to cotton oil, and holders naturally look upon stocks as good property. With present estimated holdings in the country, which has been largely made from low-priced seed, notwithstanding the setbacks which the trade has been subjected to during the fall period, there is room for the belief that the 1897-98 season will prove a profitable one to producers. Within the past week sales aggregating 15,000 barrels of prime yellow have been made, probably one-third of which was resold, destined for Europe from New York and New Orleans, prices at the latter port being 21½ cents for prime and 19½ to 20 cents for off-grade yellow f. o. b., while practically full rates as appended herewith were secured in the New York transactions. There have been good sales of white at 24 to 24½ cents, 4500 barrels in all, and 1600 barrels of winter yellow at 27 cents, all for export. Tank crude in Mississippi valley has been marked up ½c., or to 14½ cents. Georgia quotes 14 cents for bulk crude, and North Carolina 13½ cents. The following are closing prices: Crude, 18 to 18½ cents; crude, loose f. o. b. mills, 13½ to 14½ cents; summer yellow, prime, 21½ to 22½ cents; summer, off grade, 21½ cents; yellow, butter grades, 25½ cents; white, 24 to 24½ cents; white winter, 26½ to 27½ cents; winter yellow, 26½ to 27 cents; salad oil, 28 cents, and soap stock ½ to ¾c. per pound. Liverpool quotes refined oil dull at 14s. 9d. Exports for the week amount to 10,250 barrels and receipts 8350 barrels.

Concerning cake and meal, advices from abroad report a good demand at strong prices. The cold weather here and in Europe has stimulated trade. Meal is quoted at \$19.50 to \$20.50 at this

market. Exports for the week from New Orleans aggregate 65,000 bags meal and 1500 tons cake.

Cottonseed-Oil Notes.

The Belcher Cotton Oil Co., of Belcher, Texas, is running night and day, working about 100 hands. The company has enlarged its plant, having just completed a seed storage-room 150x300 feet, and is also feeding about 3000 cattle in connection with the mill.

The market for cottonseed products in Texas continues moderately active, with values about steady at the late decline. At the Houston Exchange prices ranged as follows last week: Prime crude oil, loose, 13½ to 14 cents, and prime summer yellow oil, 16 to 17 cents; prime cottonseed cake and meal, \$12.50 to \$14 per short ton, and linters, 1½ to 2½ cents per pound. The above prices are f. o. b. mill Texas interior points, according to location.

A meeting of big cottonseed-oil-mill men was held in New Orleans last week to discuss the situation in reference to cottonseed products. The New Orleans mills all participated, and the mills of Mississippi were represented. Among those present were G. M. Smedes and E. M. Durhan, of Vicksburg; F. W. Boode, of Memphis; J. B. Conley, G. B. Alexander and Robert Forte, of Greenville, Miss.; C. F. Fant, of Friar's Point; J. F. Grogan, of Clarksdale, and J. M. Mainer, of Memphis.

The New Orleans market for cottonseed products is quiet, with values about steady. Receivers' prices are as follows: Cottonseed \$7 per ton (2000 pounds) delivered to the mills; cottonseed meal jobbing at the depot, \$16.25 to \$16.50 per short ton, and \$18 to \$18.25 per long ton for export f. o. b.; cottonseed oil, 15 to 16 cents per gallon for strictly prime crude; in bulk, 13 to 14 cents, and 20 to 21 cents for refined oil at wholesale or for shipment; oilcake, \$18.25 to \$18.50 per long ton f. o. b.; linters—A, 3½ cents per pound; B, 3½ cents; C, 2½ cents; hulls delivered at 10 to 12 cents per 100 pounds, according to the location of the mills.

Iron Markets.

Cincinnati, Ohio, December 4.

The encouraging feature of the iron market during the past week has been the urgent call for shipments on old orders and the pressure for early delivery, especially to points reached by water. A late closing of navigation in the East will be of special benefit to buyers whose wants are greater than anticipated, and who are now trying to get in their winter's supply. A like urgency exists to a large extent to points reached all-rail, indicating that consumption is holding up remarkably well considering the season. An easier condition exists in the Alabama district regarding car supply, and it is expected that stocks of iron there will show a decrease during November.

The inquiry for iron is very restricted, although a few large buyers are testing the market. It looks now as if the waiting spell would continue, but the time is rapidly approaching when contracts must be made, and it is thought there will be a rush to place orders during the latter part of this month or first of January. It is unfortunate in some respects that the buying of pig iron is done by spurts instead of each consumer being governed by his own requirements. As it is now, a considerable portion of the year is considered extremely dull because of the absence of new business, although consumption is heavy and iron going forward in normal quantities on existing contracts.

The car situation has not improved any in the Pocahontas region, and this large producing centre of furnace and foundry coke is totally unable to supply the demand for lack of cars. It is clearly evident that many of the railroads will be forced to equip themselves within the next few months to take care of their traffic.

We quote for cash f. o. b. Cincinnati:

Southern coke, No. 1 foundry	—@ \$10.00
Southern coke, No. 2 foundry	—@ 9.75
Southern coke, No. 3 foundry	—@ 9.45
Southern coke, gray forge	—@ 9.25
Southern coke, mottled	—@ 9.00
Southern coke, No. 1 soft	—@ 10.00
Southern coke, No. 2 soft	—@ 9.75
Belfont coke, No. 1, Lake Sup.	11.00@ 11.50
Belfont coke, No. 2, Lake Sup.	10.50@ 10.75
Hanging Rock charcoal, No. 1	14.50@ 15.50
Tennessee charcoal, No. 1	12.50@ 13.00
Jackson Co. silvery, No. 1	12.50@ 13.00
Standard Georgia car-wheel	14.25@ 15.00

Philadelphia, Pa., December 4.

A little more active market to report this week, and, judging from rush orders coming in for quick delivery prior to the annual stock-taking, we may look for a buying movement early next year, which will become general, and, as is usually the case, buyers will contract for more material than they had at first anticipated.

When the total export trade for this year is known it will be a surprise to the general public. This business is in its infancy, and with the building up of our merchant marine, which should be encouraged by the national government, we would see an enormous expansion in our trade across the seas.

We quote for cash f. o. b. Philadelphia:

No. 1 X standard Alabama	—@ \$11.50
No. 2 X standard Alabama	—@ 11.00
No. 1 X lake ore coke iron	—@ 12.50
No. 2 X lake ore coke iron	—@ 12.50
Niagara coke, malleable	—@ 12.50
Standard Georgia C. C.	—@ 15.75

New York, N. Y., December 4.

There is really no change in the general situation. Production and consumption seem to be keeping an even pace. Manufacturers as a rule are busy, and the trade seems to be in good volume and prices satisfactory. Having entered upon the closing month of the year, many buyers refrain from making new contracts until after the turn of the year, and yet express full confidence in prices ruling and do not expect to improve upon them in January. The general conditions of business justify the belief that December will be a more active month than usual. The transportation companies will certainly be taxed to their capacity in making deliveries on old contracts.

The engineers' strike abroad is still on, which necessarily depresses the iron business in Great Britain, and the demand for iron from that source is lessened, but the business on the Continent of Europe continues very satisfactory.

Prices are well maintained, but a few of the furnaces having a surplus of certain grades feel disposed to make slight concessions for immediate shipment, but on the whole the outlook is so promising and the prospects so bright the world over that there is no ground for a pessimist to stand on, and the trade in general seems to have a cheerful confidence in the improvement of things and an enlarged traffic in every way after the close of the year.

We quote for cash f. o. b. New York:

No. 1 X standard Alabama	—@ \$11.00@ \$11.25
No. 2 X standard Alabama	—@ 10.50@ 10.75
No. 1 X lake ore coke iron	—@ 12.50@ 12.75
No. 2 X lake ore coke iron	—@ 12.00@ 12.25
Niagara coke malleable	—@ 12.00@ 12.25
Standard Georgia charcoal	—@ 15.50

ROGERS, BROWN & CO.

The Commercial Club of Birmingham has received communications from many similar bodies endorsing its work for a federal quarantine.

The Morning Post is the name of a new paper started at Raleigh, N. C., with R. M. Furman, editor.

PHOSPHATES.

Phosphate Markets.

Office Manufacturers' Record, Baltimore, Md., December 9.

In local phosphate circles the trading is comparatively light and manufacturers are not purchasing freely or in any large lots. Advices from all points of production are unchanged, and the shipments for the current year, when completed, will show that development in nearly all phosphate sections has been of the usual volume.

Fertilizer Ingredients.

The general market for ammonites is dull and weak, with little or no trading reported from any source. Western markets are quiet and prices about as last reported, with stocks somewhat reduced. There is very little demand from the South at the moment.

The following table represents the prices current at this date:

Sulphate of ammonia (gas)	\$2.30 @ 2.35
Nitrate of soda	1.70 @
Blood	1.85 @
Hoof meal	1.65 @
Azotine (beef)	1.70 @
Azotine (pork)	1.70 @
Tankage (concentrated)	1.60 @
Tankage (9 and 20)	1.60 @ and 10
Tankage (7 and 30)	15.00 @ 15.50
Fish (dry)	19.00 @
Fish (acid)	12.00 @

Phosphate and Fertilizer Notes.

The agricultural department of North Carolina reports that the sale of fertilizers this autumn are 33½ per cent. greater than they were a year ago.

The State of North Carolina, having purchased the Castle Hayne phosphate mines, will put 150 convicts to work in the mines and develop the deposit on an extensive scale.

The schooner Fannie Brown cleared from Charleston, S. C., last week for Richmond, Va., with 752 tons of phosphate rock. The total domestic shipments from Charleston so far this season amount to 20,433 tons, against 25,203 tons last year.

The Victoria Florida Phosphate Co., at Newberry, Fla., which has successfully operated one of the largest phosphate deposits in the High Springs district, is making preparations to open two new pits east and west of its present plant. It is stated that Mr. Little, president of the company, is making preparations to put up a large plant on its Half Moon property.

The phosphate shipments from Fernandina, Fla., for the month of November, as reported by E. D. Lukens, are as follows: Steamship Ranmoor for Stettin with 1957 tons, by A. Newman; steamship Atlantic for Rotterdam with 2517 tons, by J. H. Packard, and the steamship Drot for Stettin with 2654 tons, by A. Newman, making a total of 7128 tons; previously reported for the ten months ending October 31, 158,677 tons, making a grand total for eleven months ending November 30 of 165,805 tons. The charters reported for December are steamship Bitty and Aquilya, by C. E. Abson, and steamship Whitfield, by A. Newman. The estimated shipments for December are 6000 tons.

Director Joseph P. Smith, of the Bureau of American Republics, in presenting to the President a copy of the first volume of the Commercial Directory of the American Republics, suggests the appointment of trade commissioners to visit Central and South America, the building of the Nicaragua canal, the completion of the American Intercontinental Railway and the assembling in Washington in 1900 of another Pan-American Congress.

CONSTRUCTION DEPARTMENT.

THE MANUFACTURERS' RECORD
 seeks to verify every item reported in its Construction Department by a full investigation and complete correspondence with everyone interested. But it is often impossible to do this before the item must be printed, or else lose its value as news. In such cases the statements are always made as "rumored" or "reported," and not as positive items of news. If our readers will note these points they will see the necessity of the discrimination, and they will avoid accepting as a certainty matters that we explicitly state are "reports" or "rumors" only. We are always glad to have our attention called to any errors that may occur.

*Means machinery, proposals or supplies are wanted, particulars of which will be found under head of "Machinery Wanted."

In correspondence relating to matters reported in this paper, it will be of advantage to all concerned if it is stated that the information was gained from the Manufacturers' Record.

It often occurs that the organization of a new company in any town is not known by the postmaster, and hence letters addressed to the company are returned marked "not known." The Manufacturers' Record reports the first organization of all companies, and our readers, in seeking to get into communication with them, should be very careful in deciding how to address them, and even then they must expect the return of some letters, because of the lack of knowledge on the part of postmasters of all new companies. Criticisms and complaints are invited, as they will the better enable us to guard against errors.

ALABAMA.

Cordova—Cotton Mill.—There is a report current that the Indian Head Cotton Mills will erect a second plant, a duplicate of its present 50,000-spindle mill.

Hartselle—Planing Mill.—Robert Sobotka will rebuild at once his burned planing mill.*

Mobile—Ice Factory.—The Mobile Ice Co. has let contract for the erection of the building for its new factory to Hueston & Riches at \$20,000.

ARKANSAS.

Altheimer—Telephone Lines.—Incorporated: The Altheimer Long Distance Telephone Co., capital stock \$25,000, by J. H. Moon, W. H. Bellamy, N. T. White and Dr. D. C. Walt. The company will operate long-distance telephones in Lonoke, Arkansas, Jefferson, Pulaski and other counties. Address company, care of J. H. Moon.

Little Rock—Land Company.—Incorporated: The Eastern Arkansas Land Co., capital stock \$50,000, by S. S. Wassell, Herbert Wassell and T. C. Black, to purchase, own and sell real estate, lease lands, mine for metals, etc.

Prescott—Telephone Lines.—Incorporated: The Southwest Arkansas Telephone Co., by W. C. Wingfield, C. B. Gale and J. F. Abraham, with capital stock of \$5000; company proposes to own and operate a telephone system in Prescott and surrounding counties.

FLORIDA.

Fernandina—Electric-light Plant.—The city has awarded contract to the Savannah Electric Supply & Construction Co., of Savannah, Ga., for erection of electric-light plant of 1000 incandescent and forty arc lights; price \$8000.

Gainesville—Turpentine Plant.—Padgett & Milligan will develop turpentine on a tract near Gainesville.

Gainesville—Shoe Factory.—The Hynds Shoe Manufacturing Co. is putting considerable additional new machinery in its factory.

Key West—Electric Plant, etc.—The Key

West Electric Light & Railway Co. is preparing to enlarge its lighting plant and rebuild and extend the street railway and change it to electric power. Charles Sperry, superintendent and engineer of the company, will visit New York to purchase materials, machinery, etc., stopping at 12 West Thirty-first street, where he can be seen or addressed.*

Miami—Cigar Factory.—White & Ortagus will establish a cigar factory.

GEORGIA.

Adairsville—Woodworking Factory.—A. M. Cox will erect a factory for the production of boxes, crates, baskets, etc., and put in machinery for dressing lumber.*

Carrollton—Foundry and Machine Shop.—J. M. Walker and R. E. Carroll will operate a foundry and machine shop.

Cedartown—Slate Quarries.—W. M. Kelly, of Atlanta, Ga., has leased slate deposits from W. O. Cornelius; property is located near Cedartown and quarries will be opened, machinery being installed, etc.

Cedartown—Flour Mill.—George C. Benedict contemplates the erection of a roller-process flour mill, 40-barrel capacity.*

Fitzgerald—Telephone Line.—W. R. Bowen, R. V. Bowen and J. D. Mashburn have incorporated the Bowen Telephone Co., capital stock \$2000, to establish telephone lines, etc. Address care of W. R. Bowen.

Nicojack—Woolen Mill.—The Concord Woolen Mills will put in a new water-wheel soon.*

Rocky Face—Cotton Gin.—Hassler Bros. will rebuild their cotton gin next summer.*

Rossville—Woolen Mill.—The Park Woolen Mills may add some new machinery after the 1st of January, but not yet decided.

Towns County—Gold Mines.—The Greater Pittsburg Gold Mining Co. has been organized with \$100,000 capital, as previously noted, and will develop 440 acres of land in Towns county. G. A. Kline, of Freedom, Pa., is president, and J. N. Dawdelle, of Rochester, Pa., secretary-treasurer.

KENTUCKY.

Brooksville—Oil and Gas Wells.—The Brooksville Oil & Gas Co. has been organized with A. H. Brooks, G. W. Kinney, W. W. Field, S. W. Bradford and others as directors.*

Franklin—Water Works.—Contract has been awarded for the construction of water works to Guild & White, of Chattanooga, Tenn.

Paintsville—Lead Mine.—Zephaniah Meeks has formed a company to develop a lead mine.

Unlontown—Wagon Factory.—A company has been organized to establish a wagon factory; part of the machinery has been ordered. For information address W. M. Morgan, cashier, Unlontown Bank.

LOUISIANA.

New Orleans—Woodworking Factory.—Messrs. J. Clark Thwing, of Grand Rapids, Mich., and W. P. Adams, of Chicago, have been investigating at New Orleans relative to the establishment of a factory for producing veneering and preparing wood for furniture factories. The two parties mentioned are stopping at the Grunewald Hotel.

Shreveport—Steam Laundry.—The Monarch Steam Laundry Co., capital stock \$10,000, has been incorporated by F. P. Keith, W. S. Forrey, D. M. Keith and others to operate steam laundry, etc.

MARYLAND.

Baltimore—Saddle Factory.—The Lerch Cycle Saddle Co. has been incorporated by Harry A. Lerch, William M. Lerch, Charles E. Lerch, F. Thomas Lerch and John T. Bird Hyde, with capital stock of \$5000, to manufacture bicycle saddles. Address company, care of William M. Lerch.

Baltimore—Drug Company.—Incorporated: The McElwee & Duck Drug Co., by Henry Q. McElwee, Charles E. Duck, Otis W. Elzey, James T. Fowler and George L. Delichmann. The capital stock is \$3000.

Baltimore—Novelty Factory.—The Columbian Manufacturing Co. has been incorporated by Edmond J. Murphy, William S. Ryon, Forrest Bramble, Frank D. Gosnell, William G. Towers, James A. Gawthrop and Gustave W. Ridgeley for the manufacture of novelties. The capital stock is placed at

\$25,000. Address company, care of Forrest Bramble, Manufacturers' Record Building.

Crisfield—Electric-light Plant.—The Crisfield Ice Plant contemplates adding an electric-light plant to its plant.

Cumberland—Mercantile.—Incorporated: The South Cumberland Supply Co., by William C. Dickey, Howard H. Dickey, John G. B. Roberts, W. Minor Roberts, of Cumberland, and George E. Halan, of Philadelphia, Pa.; purpose, to carry on a general merchandise business.

Cumberland—Brick and Tile Works.—Articles of incorporation granted to Ernest C. Henderson, Frederick C. Perry, John W. Smith, Henry W. Hodgson and Charles H. Holtzman, forming the Queen City Brick & Tile Co., for the purpose of manufacturing bricks, tiling and terra-cotta work. The company is capitalized at \$15,000. Address company, care of Ernest C. Henderson.

Hagerstown—Knitting Mill.—The Blue Ridge Knitting Co. has doubled its capacity recently.

Washington, D. C.—Mining.—The Menook Mining Co., capital stock \$250,000, has been incorporated. J. S. Webb is president.

MISSISSIPPI.

Handsboro—Lumber Mills.—Chartered: The W. F. Zimmerman Lumber Co., capital stock \$50,000, by W. F. Zimmerman, H. Zimmerman and T. J. B. Keller.

MISSOURI.

Joplin—Brewery.—The Joplin Brewing Co. is erecting an addition and installing two new boilers of 100 horse-power each.

Joplin—Lead and Zinc Mining.—The Summit Mining Co., capital stock \$150,000, has been incorporated by H. R. Chitwood, of Carl Junction; C. I. Cross, of Joplin; A. L. Huff, of Galena, and others. Address Mr. Chitwood, at Carl Junction.

Kansas City—Mining, etc.—Chartered: The Missouri & Arkansas Land & Mining Co., capital stock \$150,000, by A. C. Robinson, N. S. Doran, G. M. Carterbury and others.

Kansas City—Marble Company.—Charles D. Whiting, Frank A. Green, Lloyd Allen and others have incorporated the Kansas City Marble & Lime Co., with capital stock of \$100,000.

St. Joseph—Improvements.—Incorporated: The Pawnee Improvement & Trading Co., capital stock \$2000, by E. C. and L. M. Smut, Milton Tootle and A. P. Clayton.

St. Louis—Realty Company.—Incorporated: The Malvern Realty Co., capital stock \$262,200, by W. P. Lym, John Hill, L. E. Anderson and others.

St. Louis—Straw Works.—Charles Cross, Wm. H. Collman and Amos J. Coyle have incorporated the Southwestern Straw Works Co., capital stock \$10,000.

St. Louis—Planing Mills.—The Ganahl Planing Mill & Manufacturing Co. has been incorporated, with capital stock of \$20,000, by J. J. Ganahl and others.

St. Louis—Seed Company.—John F. Dickmann and others have incorporated the Jos. F. Dickmann Seed Co., with a capital stock of \$20,000.

St. Louis—Bridge.—The stockholders of the proposed bridge to be built connecting St. Louis, Mo., and East St. Louis, Ill., will probably increase their capital stock from the nominal sum of \$100,000 to \$2,000,000, and then steps will be taken to ensure the construction of the structure contemplated. The bridge is to be of steel, spans not arched, six piers of solid granite, etc. A. J. Tullock has completed plans and specifications. Under the provisions of the charter granted by Congress for the building of the bridge work must be commenced before March, 1898. Address the engineer, care of Mr. Stephens, mayor of East St. Louis, Ill.

NORTH CAROLINA.

Elizabeth City—Lumber Company.—Chartered: The East Coast Cedar Co., capital stock \$50,000, by W. T. Parker, H. T. Siddons and F. M. Wrigman, all of Philadelphia, Pa.; purpose, to deal in timber lands, manufacture lumber, etc.

Hope Mills—Cotton Mill.—The Hope Mills Manufacturing Co. will put in fifty-four additional looms.

Kinston—Saw-mill Improvements.—J. B. Temple, receiver of the Kinston Lumber Co., has sold the company's mill to Messrs.

Lynch & Gay, of Suffolk, Va., for \$8000. The new owners will improve the mill and install new machinery, increasing the capacity to 35,000 feet of lumber daily. Address Messrs. Lynch & Gay, of Kinston Lumber Co., Kinston, N. C.

Raleigh—Telephone Lines.—George H. Glass, manager Raleigh Telephone Exchange, states that \$300,000 will be expended in extending lines and connecting with other cities and the long-distance system.

Reelsboro—Telephone Line.—J. M. Reed contemplates constructing a telephone line from Reelsboro to Arapahoe, a distance of ten miles.*

SOUTH CAROLINA.

Anderson—Rope and Twine Mill.—T. S. Crayton has completed building and prepared power for rope and twine mill; machinery will be purchased at once.*

Charleston—Construction, etc.—J. H. Lawrence and Wallace Lawton have incorporated the Long Island Improvement & Construction Co., capital stock \$50,000, to build hotel, etc.

Charleston—Steel Bridge, etc.—The Charleston & Seashore Railway Co. will construct a steel bridge and trestle, etc. Letters can be addressed care of George B. Edwards.

Columbia—Steam Laundry.—H. B. Howle, of Chester, S. C., will establish a steam laundry in Columbia; part of machinery ordered.*

Florence—Saw Mill.—A saw mill of 15,000 to 20,000 feet capacity will be erected. For information address H. C. Chapman, Florence, S. C.*

Georgetown—Boating Company.—The Georgetown & Pee-Dee Steamboat Co., capital stock \$15,000, has been incorporated by H. Kaminski, W. W. Taylor and E. W. Kaminski.

TENNESSEE.

Chattanooga—Bridge Works.—The Converse Bridge Co. will extend its plant and increase capacity, and work has commenced on new building, 40x40 feet; new machinery will be installed, etc.

Chattanooga—Roofing Works.—E. G. Richmond, H. Bond, J. F. Huffaker, A. C. Dover and M. S. Austin have incorporated the Chattanooga Roof & Paving Co., for purposes indicated in its title. A plant will be erected. Address E. G. Richmond.

Dayton—Boat Factory.—G. W. Harris, of Logansport, Ind., will engage in the manufacture of skiffs, etc., in Dayton. Address care of Col. W. C. Gardenshire.

Ducktown—Electric-light Plant.—The Ducktown Sulphur, Copper & Iron Co. will put in an electric-light plant.

Harriman—Iron Furnace.—A report states that Northern iron manufacturers contemplate the erection of an iron furnace at Harriman. W. T. Smith can be addressed for information.

Johnson City—Cob-pipe Factory.—F. B. St. John is equipping a factory for the production of corn-cob pipes.

Rutherford—Flour Mill.—W. F. Long is endeavoring to organize a company to erect a 30 to 50-barrel flour mill.

Tullahoma—Woodworking Factory.—The Campbell & Dunn Manufacturing Co. has recently completed its large factory for producing wagon materials; thirty to sixty men employed.*

TEXAS.

Corsicana—Foundry and Machine Shop.—Haslom & Lockhead are preparing plans for a machine shop for H. G. Johnson & Co.; building to be 78x81 feet, with machine shop, smith and boiler-rooms, etc.; a foundry building and equipment will be established later.

Corsicana—Oil Refinery.—J. S. Culleman, of Washington, Pa., has been investigating in Corsicana, it is thought with a view of erecting oil refinery, etc. Address care of J. E. Whitesell, mayor of Corsicana.

Dallas—Sulphur Company.—Chartered: The Littell Liquid Sulphur Co., capital stock \$20,000, by J. C. Warren, E. S. Edwards and M. M. Littell.

Dallas—Electric-light Plant.—Chartered: The Dallas Ice Factory, Light & Power Co., capital stock \$100,000, by Charles J. Ball, P. D. Ball, J. L. Armstrong, C. L. Wakefield and Paul M. Gallaway. This is the result of the recently reported decision of the Dal-

las Ice Factory to expend \$100,000 in adding electric-light plant to its factory.

Ennis—Ice Factory.—The Ennis Ice, Light & Water Co. will erect a 25-ton ice factory; C. A. Wheeler, secretary.

Ennis.—C. A. Wheeler, of Fort Worth, Texas, and associates have purchased the Ennis Ice, Light & Water Works Co.; the new owners will improve and continue the operation of the plant.

Houston—Construction Company.—E. Raphael, A. B. Cohn and M. Raphael have incorporated the Southern Bridge & Construction Co., with capital stock of \$25,000.

Llano—Water Works.—Wm. B. Schuwirth & Co., of San Antonio, Texas, have leased the San Antonio water works; they will erect new standpipe, lay new mains and make other improvements.

Port Arthur—Docks, Canal, Buildings, etc.—It has been decided to expend about \$2,500,000 in additional terminals, to complete canal, docks, etc., and in the erection of warehouses, etc., at Port Arthur. The Kansas City, Pittsburg & Gulf Railroad Co., of Kansas City, Mo., can be addressed.

Texarkana—Cooperage.—The Little Rock Cooperage Co., of Little Rock, Ark., has purchased site in Texarkana on which it will erect a factory for the production of oil barrels, capacity to be 500 daily.

VIRGINIA.

Big Stone Gap—Tannery, Extract Factory, etc.—The proposed tannery, etc., will be built by the Virginia Tanning & Extract Co., which Gen. R. A. Ayers has completed arrangements for. The plant will be located on a 165-acre tract of land, and include tannery to produce oak sole leather and extract factory of twenty barrels or 10,000 pounds capacity per day. Address company, care of General Ayers.

Crewe—Grist Mill.—The proposed grist mill will be erected by a company which has organized with C. E. Wilson, president; J. P. Agnew, treasurer, and W. A. Leneave, secretary. A grist mill will be erected at a cost of \$8000.

Newport News—Real Estate.—Chartered: The Cottrell Real Estate, Loan & Insurance Co., capital stock \$100,000, with W. E. Cottrell president.

Richmond—Beet-sugar Factory, etc.—The movement furthering the erection of a beet-sugar factory has resulted in the incorporation of the Southern Sugar Refining Co., capital stock \$1,000,000, with purpose of to assist in furthering the cultivation of the sugar beet in the South and to erect factories to manufacture the product. James B. Pace, of Richmond, is president, and T. C. Williams, Jr., vice-president. The directors are E. A. Saunders, Jr., R. H. Bosher, J. R. Williams and J. D. Patton. It is said that a \$450,000 factory will be erected. Address the president.

Richmond—Broom Factory.—It is stated that Thomas R. Updyke, of Michigan, has been corresponding with the Young Men's Business Association relative to the establishment of a factory.

Richmond—Gold Mining.—Applied for incorporation: The Virginia-Alaska Gold Mining Co., incorporators being A. L. Buford, Richmond; J. T. Brown, Nelson county, Virginia; A. D. Watkins, Prince Edward county, Virginia; R. C. Marshall, Portsmouth, Va.; Claude A. Swanson, of Pittsylvania county, Virginia; Daniel Trigg, Abingdon, Va.; T. C. Pilcher, Fauquier county, Virginia; James H. McGavock, Wythe county, Virginia, and H. W. Flournoy, Richmond, Va. The capital stock is to be not less than \$20,000 nor more than \$100,000.

WEST VIRGINIA.

Charleston—Publishing, etc.—Chartered: Company to conduct a general printing and publishing business; capital stock \$20,000. The incorporators are O'Brien Moore, R. M. Johnson, J. M. Payne and A. M. Prichard, of Charleston, W. Va., and W. F. Brittingham, of Richmond, Va.

Lanes Bottom—Mining, Milling, etc.—Chartered: The Gauley River Co., capital stock \$50,000, for mining, manufacturing and milling purposes, etc.; has privilege of increasing capital stock to \$5,000,000. The incorporators are Allen Orr, of New York city; D. Ricketts, of Leamington, England; Meyer Newberger, of Parkersburg; Louis T. Bushell, of Denver, Col., and E. E. Robertson, of Lanes Bottom. Address the latter.

Parkersburg—Planing Mill.—Thomas G. Reitz and others have incorporated the Reitz & Martin Planing Mill Co., with capital stock of \$12,000.

Sistersville—Gas System.—The city council has granted franchise to J. P. O'Brien

and O. Germer, Jr., both of Erie, Pa., for natural-gas system, to be piped from the Warfield district. Address care of the mayor.

Wheeling—Machinery Company.—C. E. Blue, Jr., and others have incorporated the International Machinery Co., capital stock \$7500.

BURNED.

Huntington, W. Va.—Business block owned by J. L. Thornburg.

Memphis, Tenn.—Pants factory of Goldberg & Pattison; laundry of Henry Loeb & Co.

Redboiling Springs, Tenn.—Hotel owned by M. J. O'Shaughnessy, of New York city, leased by J. M. Dedham, of Redboiling Springs; loss \$25,000.

Sparta, Ga.—Cotton gin of William Harris, near Sparta.

St. Louis, Mo.—Paper factory of F. O. Sawyer Co.; loss \$200,000.

BUILDING NOTES

Athens, Tenn.—Residence.—Geo. F. Barber & Co., Knoxville, have prepared plans for \$7500 residence for R. J. Fisher.

Chattanooga, Tenn.—Church.—The German Lutheran congregation has purchased site for the erection of a \$10,000 church.

Corsicana, Texas—Warehouse.—H. G. Johnson & Co. will build a warehouse.

Dothan, Ala.—Residence.—Geo. F. Barber & Co., of Knoxville, Tenn., have prepared plans for \$7400 residence for D. C. Carmichael.

Huntsville, Ala.—Residence.—Geo. F. Barber & Co., of Knoxville, Tenn., have prepared plans for \$3300 residence for Paul Speake.

Louisville, Ky.—Residence.—D. X. Murphy has prepared plans for a \$20,000 residence for Allen R. Hite.

Louisville, Ky.—Store Buildings.—S. W. & E. C. Hegan will erect ten store buildings at a cost of \$75,000.

Louisville, Ky.—Residence.—Clark & Loomis are preparing plans for \$10,000 residence for Dr. Sam Cochran.

Mayfield, Ky.—Residence.—N. A. Hale will erect \$3500 residence after plans by Geo. F. Barber & Co., of Knoxville, Tenn.

Newnan, Ga.—Church.—Contract for erection of church at \$12,000 has been awarded to the R. D. Cole Manufacturing Co.

Owensboro, Ky.—Warehouse.—The Owensboro Wagon Co. has commenced the erection of a new warehouse.

Saluda, S. C.—Col. E. W. Able and James A. Hunter will erect a brick building. Estimates are wanted on 50x60-foot building.

Washington, D. C.—Dwellings.—A. W. Kimmel will erect three houses, three stories, twenty feet front, bay windows, steam heat, slate roofs. E. A. Atchison will erect three houses, two stories, 21x27 feet. F. H. Walker will erect residence, tiled vestibule and baths, steam heat, etc. Mrs. Anna B. Gaegler will erect two houses, two stories, 17x36 feet. C. E. Phelps will erect brick house, two stories, 17x230 feet. J. B. Nicholson will erect eight dwellings, two stories, 16x35 feet each.

RAILROAD CONSTRUCTION

Railways.

Albany, Texas.—Residents of a number of counties in the northwestern section of the State are endeavoring to have the Texas Central Railroad extended from Albany to this section. Charles Hamilton, at Waco, Texas, is general manager of the company.

Bainbridge, Ga.—It is stated that twenty miles of track on the Georgia Pine Railroad have been completed and five miles additional graded. About 125 men are now at work on the extension to Arlington, Ga., which is to be thirty-nine miles long. R. B. Coleman, at Bainbridge, is general manager.

Bainbridge, Ga.—It is reported that the Georgia Pine Railroad Co. has determined to extend its line to Augusta. The road is graded as far as Damascus, Ga., and work is progressing on the line between Damascus and Arlington. J. W. Calhoun, of Arlington, is one of the directors of the company.

Birmingham, Ala.—The Birmingham Traction Co. will receive bids until December 15 for constructing about six and one-half miles of electric line. It will be laid with

60-pound and 56-pound steel rails. The trolley system will be used.

Birmingham, Ala.—It is reported that the Illinois Central Railroad is interested in a proposed railroad line to be built to coal lands in Marion and Walker counties, in Alabama, which will be constructed from Decatur to the property. The same line may be extended to Nashville, Tenn. J. T. Harahan, at Chicago, Ill., is vice-president of the company.

Carthage, N. C.—The Carthage Railroad has been completed a distance of nine miles in Moore county, North Carolina. W. C. Petty, at Carthage, is president of the company.

Carthage, Mo.—It is reported that the Kansas City, Pittsburg & Gulf engineers are surveying a branch line from Asbury, Mo., to Carthage, a distance of about eighteen miles. Robert Gillham, at Kansas City, is general manager of the company.

Coffeeville, Ala.—The Alabama & Tombigbee Railroad Co. has been incorporated to build a railroad line between Peach Tree, in Wilcox county, and Coffeeville. Among those interested are George C. Burr and F. Van Buren, of New York; Geo. S. Van Buren and Charles M. Dunn, of Fulton, Ala.; W. H. Thomas and Fred S. Ball, of Montgomery.

Concord, N. C.—It is reported that the Concord & Aberdeen Railroad Co. has secured a loan of \$1,250,000 to construct its proposed railroad and that work will begin upon the line within thirty days. John C. Wadsworth, of Concord, N. C., is general manager of the company.

Dayton, Ala.—The Dayton & Faunsdale Railroad Co., which intends building a railroad line into the Warrior and Blockton coal-fields, has secured a charter. Its capital stock is \$750,000. The road is also to be built between the towns mentioned, a distance of forty miles; also a 50-mile extension. G. L. Siddons, of Dayton, is president of the company.

El Paso, Texas.—George S. Good & Co., general contractors for the El Paso & White Oaks Railroad, advise the Manufacturers' Record that this line will be laid with 60-pound rails and that a number of sub-contracts will be let. They may be addressed for further particulars. The total length of the line is 165 miles.

Fleming, Mo.—Robert Simons, president of the company which is promoting an electric line between Weller City, Kan., and Fleming, Mo., states that this road will be about twelve miles in length and will traverse a comparatively level country. He may be addressed for further particulars.

Florence, S. C.—H. C. Chapman advises the Manufacturers' Record that arrangements are being made to build about seven miles of tramroad near Florence.

Frostburg, Md.—A company may be formed to build a railroad between Frostburg and Piedmont, W. Va., a distance of eighteen miles. J. W. Burchinal, of Moundsville, W. Va., who is one of the directors of the Moundsville, Benwood & Wheeling Electric Railroad Co., is interested in the project.

Galveston, Texas.—It is stated that the Galveston, Brazos & Southwestern Railroad Co. has determined to build its line to San Antonio. It will be extended first to Victoria, Texas, thence to San Antonio. It is stated that about twenty miles of the line have already been graded between Galveston and Angleton and that tracklaying is to begin by December 20. L. P. Featherstone and R. J. Sledge are among the promoters of the enterprise. The road will enter Galveston over the tracks of the Gulf, Colorado & Santa Fe road.

Henrietta, Texas.—W. A. Squires, of Henrietta, president of the Gulf, Brazos Valley & Pacific Railroad Co., states that contracts have been let upon a portion of the line and that by July 1 it will be in operation between Mineral Wells and Henrietta.

Jonesboro, Ark.—It is stated that the Jonesboro, Lake City & Eastern Railroad has been completed between Nettleton and Lake City, a distance of twelve miles. It connects the Kansas City, Fort Scott & Memphis and the St. Louis, Iron Mountain & Southern Railroads. It is to be built further to Osceola, on the Mississippi river, and to Jonesboro. C. V. Smith, at Jonesboro, is chief engineer.

Joplin, Mo.—It is reported that the question of building a branch line of the Missouri & Kansas City from Parsons, Kan., to Joplin has been revived. S. B. Fisher is chief engineer, at St. Louis, Mo.

Key West, Fla.—Charles Sperry, superintendent of the Key West Electric Light & Railway Co., advises the Manufacturers' Record that this company is preparing to

increase the capacity of its light and power plant and intends rebuilding and extending its railway system. Mr. Sperry will be in New York about December 15, where he may be addressed at 12 West Thirty-first street.

Mer Rouge, La.—The people of this parish are considering the idea of voting an annual tax in favor of the Lake Providence & Western Railroad to insure the completion of that road to Mer Rouge. E. J. Hanley, at Lake Providence, is one of the promoters of the line.

Nashville, Tenn.—The city council has voted in favor of having an election to consider what is known as the Crawford railroad bill. This bill advocates an issue of bonds to insure the extension of the Nashville & Knoxville Railroad to Nashville from its present terminus. A. J. Crawford, of Terre Haute, Ind., is president of the company.

New Orleans, La.—It is stated that the Southern Pacific Railroad Co. has decided to build about twenty-five miles of branch line in Louisiana, and J. T. Mahl, its engineer, is now receiving bids for the construction of this line. Mr. Mahl's address is at Houston, Texas.

Pickens, S. C.—Mr. John Gary Evans, one of the promoters of the railroad line between Pickens and Easley, advises the Manufacturers' Record that contracts for constructing and equipping have been let and work has already begun. Mr. Evans's address is at Aiken, S. C. The road in question will be seven miles long and will connect with the Southern system at Pickens.

Salem, Texas.—It is reported that fourteen miles of the Orange, Call & Pine Belt Railroad have been completed and that trains are now in operation between these points. The line is proposed between Orange and Jasper, Texas, a distance of seventy-five miles. Dennis Call, of Orange, Texas, is president.

Springfield, Mo.—F. O. Hadley, president of the Ozark Construction Co., informs the Manufacturers' Record that grading has begun upon the section of ten miles of the St. Louis, Mansfield & Ava Southern Railroad. The portion under construction is north of Mansfield, Mo. The Ozark Construction Co. is the general contractor for this line.

St. Louis, Mo.—J. H. Taylor, 519 Roe Building, advises the Manufacturers' Record that he is in the market to purchase rails, etc., for a railroad line in Mexico to be sixty miles long.

Texarkana, Ark.—The Little River Valley Railway Co. has been formed, with \$500,000 capital, to build from a point on the Kansas City, Pittsburg & Gulf system to a point on the line between Arkansas and Indian Territory. The road will be about forty miles long. Among those interested are B. C. Richardson, of Oklahoma City, and L. A. Byrne, of Texarkana.

Street Railways.

Charleston, S. C.—It is reported that arrangements are being completed in the interest of the electric line between Charleston and Long Island, the summer resort on the coast. Local parties, it is understood, are interested in the project.

Parkersburg, W. Va.—The Parkersburg City & Suburban Electric Railway Co. has been organized with \$300,000 capital. It intends building an electric line six and one-half miles long. James M. Jackson, W. W. Van Winkle and Hon. J. N. Camden, of Parkersburg, are interested in the company. Messrs. Brown & Hazlett, of Wheeling, W. Va., are engineers of the company.

Machinery, Proposals and Supplies Wanted.

Manufacturers and others in need of machinery of any kind are requested to consult our advertising columns, and if they cannot find just what they wish, if they will send us particulars as to the kind of machinery needed we will make their wants known free of cost, and in this way secure the attention of machinery manufacturers throughout the country. The MANUFACTURERS' RECORD has received during the week the following particulars as to machinery that is wanted.

Armor Factory.—John D. Long, Secretary Navy, Washington, D. C., will open proposals publicly on January 29, 1898, for erection and equipment complete (including land, buildings and machinery) of a government armor factory, in accordance with

plans and specifications. A circular giving further particulars is furnished on application to the recorder of the armor factory board. Bids are to be received for the whole or any part of the plant, buildings, machinery, etc.

Belting.—See "Woodworking Machinery."

Belting, etc.—Robert Sobotka, Hartselle, Ala., will want shafting, pulleys, belting, etc.

Boiler and Engine.—H. C. Chapman, Florence, S. C., will want to buy 60 to 125-horse-power boiler and 50 to 100 engine; second-hand in good order will do.

Boiler and Engine.—The Collins Co., Pennsboro, W. Va., is in the market for 50-horse-power engine and 60-horse-power boiler.

Cotton Gin.—Bassler Bros., Rocky Face, Ga., will want cotton gin.

Cotton-mill Machinery.—T. S. Crayton, Anderson, S. C., wants plans and estimates on equipment for the manufacture of cotton rope, twine, etc.

Cotton-mill Machinery.—H. A. Cook, Tenth and Caldwell streets, Charlotte, N. C., wants a second-hand machine for mixing mutes and lint cotton together.

Electric Equipment, etc.—The Key West (Fla.) Electric Light & Railway Co. will buy equipment and machinery for enlarging lighting plant, installing power plant to operate railway, etc. Charles Sperry, superintendent and engineer of the company, will visit New York city to contract for the equipment and can be addressed at 12 West Thirty-first street or seen. (See "Railway Equipment.")

Electric Plant.—Bids will be opened December 23 for installation of electric-lighting plant in building at Fort Monroe, Va. Address Thomas L. Casey, captain engineers, 166 Granby street, Norfolk, Va.

Engine.—Dozier & Co., Athens, Ga., are in the market for 12-horse-power engine.

Flour Mill.—George C. Benedict, Cedar-town, Ga., wants bids on the erection of a roller-process flour mill of forty barrels daily capacity.

Flour-mill Machinery.—The Greer Machinery Co., Knoxville, Tenn., is in the market for one set of 42-inch wheat burrs, either new or second-hand.

Gas Manufacturers.—Jay Schrader, Ph.D., Abbeville, Ga., wants addresses of reliable houses manufacturing oxygen and hydrogen gases and expressing same in tanks.

Hotel Equipment, Furniture, etc.—Prof. Lomady, Marienbad Springs, Winston, N. C., wants crockery, tableware, carpets, furniture, silverware, lace curtains, chandeliers, etc., for hotel.

Laundry Machinery.—H. B. Howie, Chester, S. C., will need several laundry machines.

Logging Equipment.—The Peerless Lumber Co., Aquone, N. C., wants a logging truck, 36-inch gauge, or wheels and axles for it, to run on wooden rails; good second-hand will do.

Machine Tools.—See "Woodworking Machinery," agent Campbell & Dann Manufacturing Co.

Machine Tools.—The A. A. Browne Novelty Manufacturing Co., San Antonio, Texas, wants a good second-hand back-gear screw-cutting engine lathe, six or eight-foot bed, 18 to 22-inch swing; also a power press to correspond to a Bliss No. 20, about a 7x9 opening.

Machine Tools.—George Peacock, Selma, Ala., is in the market for a new or good second-hand engine lathe about 28 to 30-inch swing, that will turn about six or seven feet between centres; a good, strong, substantial tool, with not less than three-inch belt power, and not over fourteen feet in length over all.

Railway Equipment.—H. C. Chapman, Florence, S. C., states that seven miles of tram-railroad equipment will be wanted.

Railway Equipment.—J. H. Taylor, 519 Roe Building, St. Louis, Mo., is in the market for 56-pound rails, ties, bridge timbers, equipment, etc., for 60-mile railway in Mexico.

Railway Equipment (Electric).—The Key West (Fla.) Electric Light & Railway Co. will buy equipment complete for electrical railway, etc. Charles Sperry, superintendent and engineer of the company, will visit New York city to contract for the equipment and can be seen at or addressed at 12 West Thirty-first street.

Railway Equipment.—See "Logging Equipment."

Railway Equipment (Electrical).—The Birmingham Traction Co., Birmingham, Ala., will open bids December 15 for the electrical

equipment complete of its power plant and railway. Machinery will include two 125-kilowatt generators, complete, including switchboard; direct connected generators, engines, boilers (two of 150 horse-power each), traveling crane, etc.; trolley wires, over six miles of track, etc. Specifications furnished on application. G. M. Williams, general manager; George H. Clark, engineer.

Roofing.—Robert Sobotka, Hartselle, Ala., will buy iron roofing.

Saw Mill.—Hassler Bros., Rocky Face, Ga., want a No. 1 circular-saw mill.

Telephone Equipment.—J. M. Reed, Reelsboro, N. C., will want to buy equipment complete for ten-mile line.

Water-wheel.—The Concord Woolen Mills, Nicojack, Ga., will put in a new water-wheel; T. S. Ludlow, superintendent.

Woodworking Machinery.—The Campbell & Dann Manufacturing Co., Tullahoma, Tenn., wants a good power-drill press, five and one-half to six feet high, 15-inch table, with lever to raise, and lower-drill table to remain fixed when once set.

Woodworking Machinery.—H. C. Chapman, Florence, S. C., will want to buy engine of 50 to 100 horse-power, 60 to 125-horse-power boiler, saw mill of 15,000 to 20,000 feet capacity, with not less than forty feet carriage, 60-inch saw, 12-inch belting, planer and matcher; second-hand equipment will answer if in good condition.

Woodworking Machinery.—Robert Sobotka, Hartselle, Ala., will buy equipment for saw mill, including shafting, pulleys, belting and iron roofing.

Woodworking Machinery.—A. M. Cox, Adairsville, Ga., will buy machinery for manufacturing boxes, crates, etc.; also planer and matcher, and possibly molding machine.

Woodworking Machinery.—Dozler & Co., Athens, Ga., are in the market for planer and matcher, about 6x18x10, and circular resaw; planer is wanted for general shop work and must be quick to change sizes, etc.; second-hand machinery will do.

Woolen-mill Machinery.—The Franklin Woolen Mills Co., Franklin, Ky., wants a card for hard ends (not a hard-end picker, but a hard-end card.)

TRADE NOTES.

American Foundrymen.—The next convention of the American Foundrymen's Association (secretary, John A. Penton, Detroit, Mich.) will be held in Cincinnati, O.

Winding Machine.—A direct-connected electric elevator winding machine (Graves make) is being offered for sale by Messrs. James Bates's Sons, Baltimore, Md. The drum is grooved to lift about fifty feet at speed of 150 feet per minute, etc.

Tanks.—The manufacture of tanks of cypress wood in all sizes and for all purposes is made a specialty by the firm of Messrs. G. M. Davis & Son, of Palatka, Fla. Correspondence from those proposing to purchase such goods will receive prompt attention.

Saw Mill for Sale.—A modern saw mill (band and circular) of 60,000 feet capacity, with electric lights, etc., is offered for sale by Bennett, Box 2518, New York city. The plant is admirably located in a Kentucky timber district, where it can be successfully operated.

Water-power for Sale.—Messrs. Pou & Pou, of Smithfield, N. C., are offering for sale a valuable water-power in their State. It is the first ledge of granite rock which crosses the river going up, and there is an abundance of granite, smooth grain, dark green in color.

New Cotton Gin.—An improvement on a cotton gin has been invented by Mr. L. F. Nance, of Leesburg, Ala., that lightens draft, increases capacity, preserves the fibre and strips the seed entirely clean. Mr. Nance desires to contract for the manufacture of his improvement.

Heating Plants.—Recent contracts for the installation of the Webster system of steam heating include buildings at Philadelphia, Pa., Atlanta, Ga., Waterville, Me., Wilkes-barre, Pa., Cleveland, O., Norfolk, Va., Cincinnati, O., and New York city. Messrs. Warren Webster & Co., of Camden, N. J., install this system.

Heating Systems.—The Peck-Hammond Co., of Cincinnati, O., reports having recently closed contracts for heating the infirmary of the State Normal and Industrial College at Greensboro, N. C.; the State

Agricultural School and Experimental Station at Wetumpka, Ala., and the Benedictine Sisters' Home at Jonesboro, Ark. Other contracts recently closed are for heating residences at Lynchburg, Va., Birmingham, Ala.; public school, Batesville, Miss.; First Baptist Church, Piano, Texas, and Church of Good Shepherd, Lake Charles, La.

Cotton-mill Machinery.—The Petee Machine Works, of Newton Upper Falls, Mass., has been doing a large amount of business in its revolving flat-cards and drawing frames, and at the present time is setting up machinery at the following mills: Spartan Mills, Spartanburg, S. C.; Indian Head Mills of Alabama, Cordova, Ala.; Avondale Mills, Birmingham, Ala.; Laurel Mills, Baltimore, Md.; Skenandoa Cotton Co., Utica, N. Y.; Naumkeag Steam Cotton Co., Salem, Mass.; Pepperell & Laconia Co., Biddeford, Me.; Arkwright Mills, Spartanburg, S. C.; People's Cotton Factory, Montgomery, Ala., and Johnson & Johnson, New Brunswick, N. J.

Valves and Regulators.—The Foster Engineering Co., of Newark, N. J., states that its October and November business has broken all previous records. Among the large orders received is noted 104 valves of sizes from three-quarter inch to three inches, seven 10-inch valves, other 12-inch, 10-inch and eight-inch orders, and a contract for sixty-three valves for three United States battleships under construction by the Newport News Shipbuilding & Dry Dock Co. In addition to these, the company's agent in Great Britain has ordered a full line of Foster regulators up to twelve inches, inclusive, and the agent on the Continent has placed orders with the Krupps of Germany and for the railroads of Russia, Germany, France, Austria, Holland, Belgium and Switzerland. These foreign orders, with others from American railroads, industrial establishments, electric plants, etc., have kept the Foster engineering works busy in every department.

Slate Quarrying.—The Slatington, Pa., region is known all over the world for the superior quality of its slate products, and more than one-third of the entire roofing and structural slate produced in the United States is claimed to come from the quarries of this region. The product of the Slatington region quarries is receiving considerable attention in the South and a constantly increasing demand for it is being experienced. Some very satisfactory orders for Southern points have been filled during the past few months and many more inquiries are being received. Among the special shipments of roofing slate sent South from this region recently have been those of Mr. David McKenna, whose office is at Slatington, Pa. Mr. McKenna has furnished slate for a fine new residence erected at Washington, N. C., by Mr. S. R. Foulke; also for the Church of the Good Shepherd at Augusta, Ga., and for Mr. P. B. Deans, Wilson, N. C., as well as others.

Steam-towing Machines.—The manufacturer of that valued aid to commerce and transportation, the steam-towing machine, has introduced a smaller-sized machine than ever has been built before and designed especially for medium-sized tugs. This special machine is very compact, taking up very little room on the deck; it is also very powerful, being geared five to one, whereas the large towing machines are only geared four to one. The ability of the machine is equal in all respects to tow a weight of from 3500 to 4000 tons, in addition to the weight of the barges, and this is done with a steel wire rope one and one-quarter inches in diameter, so that it is not altogether a baby engine, either. The castings are all made of the best open-hearth steel, with the exception of the cylinders, and this has been done so as to have the machine extremely light and yet to be as strong in every particular as the larger machines for towing purposes. The small towing machine is adapted to medium-size tugs, for harbor tugs that do ocean towing where the amount towed is not more than 4000 tons besides the weight of barge. This towing machine has the regular 24-inch diameter drum, of sufficient length to wind 200 fathoms of 1 1/4-inch diameter steel wire hawser, and yet the bed-plate is only five and one-half feet square, and the machine only weighs 9800 pounds. The American Ship Windlass Co., Frank S. Manton, agent, Providence, R. I., builds these devices.

Interesting to Oil-mill Operators.—Some interesting correspondence about steam traps, now before us, contains much matter of information for operators and managers of cottonseed-oil mills and other plants. The correspondence consists of several letters

passing between the William S. Haines Co., of Philadelphia, Pa., and Mr. Osborne Coleman, superintending the erection of a cottonseed-oil mill for Mr. Robert Kaye at Aberdeen, Miss. The methods of operation of the Heintz steam trap appealed to Mr. Coleman upon perusal of an explanation of them, and he immediately ordered several, to be paid for if satisfactory, or returned if not. The results of the trials of the Heintz device Mr. Coleman states in the following words: "I extended the drainage to about twenty feet away from the cookers and put the two No. 2 traps, one on each cooker, and one of the No. 1 traps on the sub-heater, and I find they handle all the condensation the cooker can possibly make. I have left steam on day and night and in the morning go to the traps and open the blow-off valve and find scarcely any condensation in the pipes—the traps have exhausted it all without any sign of steam blowing out. They are certainly the finest traps I have tried, and I have tried a good many different kinds, and never found one before that would do the work completely, and one that, like these, gives you no trouble—they take care of themselves—and from a critical examination of their interior I do not see how they can ever wear out or give out in any shape. In running an oil mill I would not be without them." The Haines Company is in receipt of many more testimonials regarding the efficiency of the Heintz steam trap, including cotton mills, oil mills and refineries.

TRADE LITERATURE.

Pumping Jack.—The Standard oil-well pumping jack, manufactured by the Columbus Machine Co., of Columbus, O., is described in a circular now being issued.

Electrical Company.—The address of the Ward Leonard Electric Co. is Bronxville, N. Y. (not N. J.). We referred to this company last week in noticing its catalogue of enamel rheostats.

New Pipe Bender.—A new patented perfect pipe bender is treated upon by the Cleveland Wire Spring Co., of Cleveland, O., in a circular just issued. The maker claims that this bender is an important improvement over those heretofore on the market. A steel-wall tie, for bonding brick in buildings, is also a product of this company.

"Advertising for Profit."—A little business book, bearing the title "Advertising for Profit," is issued by the Manufacturers' Advertising Bureau, 126 Liberty street, New York, and tells in a brief, busy man's way how Mr. Western and his associates work. Copies, we are informed, can be obtained gratis upon application, accompanied by business card.

"Economical Elegance."—This is the title of a leaflet issued by Messrs. Gara, McGinley & Co., of 23 South Seventh street, Philadelphia, Pa. This firm manufactures steel ceilings, cornices, building fronts and architectural sheet metal of all kinds, and their leaflet illustrates some of the "economical elegance" which can be imparted to ceilings by the use of their materials.

Wire Springs.—Twenty years of experience in the manufacture of steel-wire springs, for all purposes, enable the Cleveland Wire Spring Co., of Cleveland, O., to produce a line of goods of undoubted merit. Springs of the greatest reliability in temper, exactness to size, finish and durability—essential features appreciated by all—and particularly those springs required for special and agricultural machines, are furnished by the company. Catalogue, illustrated, with sizes, etc., furnished.

An Edison & Swan Souvenir.—There has been issued a souvenir of the Imperial Victorian Exhibition at the Crystal Palace, now just closing, which contains in a very brief form the history of the introduction of electric light into England, with which history the Edison & Swan United Electric Co., Limited, of London, is particularly identified, as the founders of the first central station and as the original makers of the incandescent lamp, now well known as the "Ediswan Lamp," which has won the legend, "The best and the cheapest in the end." Mr. E. Coote is general manager of the company.

Practical Ice Making and Refrigerating.—In a cloth-covered book of 235 pages Mr. Eugene T. Skinkle ("The Boy") has given to those interested in ice manufacturing and artificial refrigeration a most complete treatise on this modern science. An introductory chapter tells of the first ice machine with which Mr. Skinkle was ac-

qualanted, some twenty-one years ago, and reference is made to several of the initial machines marketed. In the course of "Practical Ice Making and Refrigerating" Mr. Skinkle touches upon "Cooling Surfaces and Circulation," "Location of Piping," "Construction and Piping of Brine Tanks," "Brine-Tank Coils," "Construction of Ammonia Compressor," "Compressor Equipment," "Operating Instruction," "Hints on Ice Making," "Distillation of Water," etc. To every manufacturer of ice and operator of refrigerating plants this volume will be found of interest.

Water-works Contractors.—To any interested in water supply and fire protection the souvenir issued by Messrs. Crellin & Lovell, of Des Moines, Iowa, will prove of interest. The souvenir is entitled "Water Works," and contains a number of hints regarding the methods used in obtaining and distributing water supply in small and large towns, facts regarding fire protection, points on insurance rates, points on the ways of taking the proper steps to vote on bonds and other information of interest. Messrs. Crellin & Lovell make a specialty of the design and construction of water works, and they deem their experience and professional training to have been such as eminently fits them to undertake contracts in their line with full assurance of giving thorough satisfaction to those employing them. The firm's practice has brought it in contact with a great variety of engineering problems connected with hydraulic work, and Messrs. Crellin & Lovell feel confident to advise as to the most economical methods of supplying good water in any quantity.

The plans of the Northern Pacific & Alaska Mining, Transportation & Trading Co., recently detailed in the Manufacturers' Record, are attracting much interest among the many thousands considering the possibilities of the Klondike gold region. Offices have been opened in New York, in the Equitable Building; in Baltimore, in Firemen's Insurance Building, and in Washington, in the Washington Loan & Trust Building. The officers, as already stated, include Mr. Henry A. Parr, president of the Baltimore & Northern Railway Co. and one of the firm of extensive grain-export dealers of L. M. Parr & Son. Mr. Parr is president of the company, while Hon. John K. Cowen, president of the Baltimore & Ohio Railroad, is vice-president. The other officers include Mr. Christian Devries, president of the National Bank of Baltimore, and gentlemen of equally high standing.

SHEFFIELD'S IRON DISTRICT.

Its Advantages for the Manufacture of Basic Open-Hearth Steel.

By James C. Foster, Chemist.

The vast iron-ore beds of North Alabama and the adjacent section of Tennessee are in a part of that great valley extending from Canada to Alabama, so noted for its rich fertile limestone lands, its great iron-ore belt, its pure waters, its bracing climate and its varied and picturesque scenery. It includes the Cumberland valley in Pennsylvania, the Valley of Virginia in Virginia, and further south the East Tennessee. Here the sixteen geological formations, which extend to such a depth in the North, have thinned out to that of a few hundred feet, leaving their concentrated mineral wealth on or near the surface. Almost the entire supply is from the hydrated brown hematite beds. The two principal districts worked are Lawrence county, Tennessee, and Franklin county, Alabama. In the case of the latter, the ore lies in the lower silurian, immediately over the Knox dolomite, which in this locality is an oolitic stone of the very purest quality. This ore is of the same formation as that of what is known as the Cripple Creek region of Virginia, and which has had such a famous reputation in the past for its particular excellence in charcoal iron. It is always worked in open cuts, and generally lies in a loamy, friable clay, but at times horses of a heavy, unctuous clay (locally known as "white hoss") protrude up through it. This is difficult to separate, and an enemy to good furnace working. We cannot

call many of these deposits veins, although the ore is usually found along certain definite lines. They are more strictly lenticular masses, sometimes overlying or sometimes alone, and always found to be enclosed in clay.

The ore of Lawrence county, Tennessee, is 100 or more feet above the limestone, and is in the subcarboniferous age. It is found in a loose sandy material, from which it is easily separated. The territory included within a radius of thirty miles has up to this time supplied the seven furnaces in this immediate vicinity, besides materially aiding others outside. Every indication points to its ability to continue to supply these and many others for an indefinite time to come.

The quality of the ore is the strongest claim we can make for the district. This is best explained by a table of analyses, the ores being bought and paid for entirely on that basis. I give the very latest average reports:

Sheffield average, month of September.	Colbert average, week ending October 9.		
	Lawrence Co. McLanahan	Franklin Co. Franklin Creek.	Lawrence Co. West Point.
Iron.....	50.55	52.40	51.23
Silica.....	12.20	9.60	10.80
Phosphorus.....	.68	.33	.30
Manganese.....	.38	.28	.40
			49.64
			13.10
			.72
			.36

The above, representing samples of from 1000 to 10,000 tons, should be a safe criterion by which to judge the value of the ore. The only deleterious element to be contended with is phosphorus, and this is not high enough to be a serious obstacle, especially for the production of basic iron. The low silica residue, combined with the low melting point of the ores, make it an easy matter to produce a low silicon iron; in fact, we find it difficult to make iron high enough in silicon for foundry purposes.

The ore is all bought on the basis of eighty cents per ton for 50 per cent. ore, two and a-half cents on or off for each unit above or below 50 per cent. It is found almost universally on elevated points, and worked entirely in open cuts, mostly with the steam shovel. The richness of the material and the "white horse" encountered are the uncertainties with which to be contended. The ore of the pockets is usually in separate masses, boulders, nodules and gravels, scattered through a reddish-colored, foamy matrix, though the ore in some pockets is almost solid. In places a white cherty material, or conglomerate, overlies the ore, but it is generally very free from this, and usually has a light stripping. The mines in Lawrence county are along Shoal creek, which furnishes a good supply of water at all times of the year. In Franklin county the field is drained by Cedar creek and smaller streams. In general, the topography of the territory is very convenient for washing, to which process the ore is almost universally subjected.

LIMESTONE DEPOSITS.

Within a half mile of the furnaces, along the river bluff, are large deposits of a very pure limestone, which in most localities would be considered a flux of the very finest quality. This is entirely shadowed by the stone used, which is a beautiful white, soft, oolitic stone of the purest quality, said to be the nearest to a pure carbonate of any fluxing stone used in the United States. It contains less than 1 per cent. silica, and about 1 per cent. of iron and alumina, leaving over 98 per cent. pure carbonate. There are hundreds of acres of it. The place worked requires no stripping, has a great depth and is not intermixed with seams of an inferior quality. The stone

runs so regular that an analysis is seldom made. It costs fifty cents per ton laid down in the furnace stockhouses.

Coke is the fuel universally used, and is apparently the item in our industry which would permit of the widest range of improvement. Our supply now comes from Virginia, Kentucky, Tennessee and Alabama. The greater part, however, is from the latter State, about ninety miles south of us on the North Alabama Railroad. This would seem our natural base of supply, and is fast coming so to be. The two principal brands of this section are styled Jasper and Horse Creek, the former showing about 12 per cent. ash and the latter 16 per cent., and both showing about .50 to .56 in sulphur. This low sulphur content is the great argument in favor of our advantage in the production of iron low in sulphur so suitable for the manufacture of steel.

PIG IRON PRODUCTION.

The present improved appearance of trade, together with the experimental advancements in the South, makes the steel situation at the present time of special importance, and has had the effect of inducing investors and manufacturers to look upon this as the future field of development. The open-hearth process began to assume importance about 1885. In 1894 one-fourth the steel produced in this country was by that method. In 1895 there were built or in course of construction thirty-seven basic and ten acid open-hearth furnaces. The Bessemer steel, though most generally strong, homogeneous, durable and suitable to most demands, still did not give entire satisfaction. Occasionally it was found to lack strength and soundness, and led careful men to fear its use, causing a resort to crucible steel in many instances, especially in the manufacture of plates. This product gave entire satisfaction, but was so expensive that efforts were soon made to find a cheaper mode of making a material that would give such satisfaction. This was found in the open-hearth process, and soon created a popular demand for that material. Among its many uses are boiler and armor plates, all kinds of sheets, many tools, springs and all manner of mild steel for many purposes. The rapid growth and development of the basic over the acid process is primarily due to the superior quality of its product. In the acid process, first to be used, the requirements of the materials for both Bessemer and open-hearth were not over .05 in sulphur and .10 in phosphorus, neither of these being reduced during conversion. Carbon, silicon and manganese are reduced to a greater or less degree, and it is the proportionate extent to which these remain in the metal that regulates the grade and quality of the steel. The fact that the phosphorus and sulphur cannot be contained beyond a very low percentage, and that they are not reduced in the ordinary acid process, confines us to the use of material not aggregating more than that amount. This makes it impossible for many districts to enter into the market on account of their material containing too high a percentage of these obnoxious elements. The basic process, different from the acid only in the character of furnace lining and slag used, has largely overcome this difficulty. It is a well-known fact that the disposition of phosphorus is one of a preferential relation. A slag low in silica increases the tendency of phosphorus to enter it. As the sum of the silica and phosphoric acid increase, the power of the slag to absorb phosphorus diminishes, the requirements for basic iron being usually not over 1 per cent. silicon, 1 per cent. phosphorus and .03 sulphur. Furnace prac-

tic having developed the fact that low silicon iron is made with a lower degree of heat than the iron higher in silicon, also that the sulphur has a lesser tendency to enter the slag at the lower heat, makes it extremely difficult in most localities to make an iron low in silicon that does not have a high content of sulphur. We are enabled to overcome this most easily with our low sulphur cokes, low siliceous and low melting ores. The analysis of our iron can be varied largely by varying the ore mixtures. A fair average analysis would be:

Colbert No. 2 Foundry.	
Silicon	.210
Phosphorus	.85
Sulphur	.005
Manganese	.55
Combined Carbon	.28
Graphitic Carbon	2.75

Tabulating what we claim to be the natural advantages of the Sheffield district for the production of iron suitable for the manufacture of basic open-hearth steel:

1. The richness of our ore in metallic iron, showing an annual yield of not less than 50 per cent. in the furnace, and the consequent low per cent. of siliceous matter therein.
2. The low melting point of our ores, combined with their low siliceous residue, enabling us to make silicon iron.
3. The low sulphur content of our cokes and ores, together with the manganese and lesser acid nature of our furnace, producing a remarkably low sulphur iron.
4. The soft, easily workable quality and purity of our fluxing stone.
5. Our ability to make 2300 pounds of iron with 2000 pounds of coke.
6. The universally admitted superior quality of the irons made from the brown ore.
7. Our ability to make iron as cheap as any other place in the world.
8. The unlimited quantity of our materials.

Sheffield, Ala.

CALIFORNIA.

Personally Conducted Tour via Pennsylvania Railroad.

America is a great country. In variety and grandeur of natural scenery it is unrivaled. Its wooded heights, its fertile valleys, its boundless plains, its rugged and rocky mountains, its great lakes, its balmy slopes are the admiration of all mankind. To traverse this great country, to behold its diversities and its wonders, is a liberal education, a revelation to the immature metropolitan citizen. The personally-conducted tour to California under the direction of the Pennsylvania Railroad Co., which leaves New York on January 8, 1898, affords a most excellent opportunity to view the vast variety and boundless beauty of this marvelous land. The party will travel westward in special Pullman cars in charge of a tourist agent and chaperon, stopping en route at Omaha, Denver, Colorado Springs, Manitou, Garden of the Gods, Glenwood Springs and Salt Lake City. In California visits will be made to Monterey and the famous Hotel Del Monte, Santa Cruz, San Jose, Los Angeles, San Diego, Riverside, San Bernardino, Redlands and Pasadena. The party will return on the "Golden Gate Special," the finest train that crosses the Continent, leaving Los Angeles February 2, and stopping at Tucson, El Paso and St. Louis. Eighteen days will be spent in California. Round-trip rate, including all necessary expenses during entire trip, \$335 from all points on the Pennsylvania Railroad System east of Pittsburgh; \$330 from Pittsburgh. For itinerary and full information apply to ticket agents, or address Geo. W. Boyd, assistant general passenger agent, Broad Street Station, Philadelphia.

The Chicago, Indianapolis & Louisville Railway (Monon Route) are now members of the Mileage Ticket Bureau, and all interchangeable books, with or without the name of the Monon on them, are good on all C. H. & D. and Chicago, Indianapolis & Louisville trains.

FINANCIAL NEWS.

The Manufacturers' Record invites information about Southern financial matters, items of news about new institutions, dividends declared, securities to be issued, openings for new banks, and general discussions of financial subjects bearing upon Southern matters.

No advertisements but those of a financial character will be accepted for this page.

The South and Banking

Mr. Stuyvesant Fish, president of the Illinois Central Railroad, vice-president of the Park National Bank, of New York city, and a member of the monetary commission, in a recent interview in New York on the prospects for currency legislation by the present Congress, said:

"I am well aware that the prospects are not as bright as we could wish, but we propose to keep at it until we get something done. The great need of the country is a better banking system. I sympathize with the South in its demand for better banking facilities. Charging people 15 per cent. in one place and 2 per cent. in another for the use of money is not equitable or just. The laws governing national banks were mostly framed by Secretary Chase in order to force the old State banks, which had both capital and credit, to support the government's finances. As a war measure they were defensible, but in the present conditions they work a great deal of injury to the country. Our banks must be allowed to establish branches."

A Southern Insurance Company.

The Southern Stock-Mutual Insurance Co., of Greensboro, N. C., was organized about three years ago, with a capital of \$100,000, and backed by the most substantial capitalists in North Carolina. One of the purposes of this company was to demonstrate that the cost of fire insurance could be reduced, and this fact has been demonstrated conclusively in the following manner: The company adheres strictly to the established rates which the experience of other companies has shown to be adequate, and each year, after paying losses and expenses and setting aside 10 per cent. of the premium receipts as compensation to the company's capital, and reserving the unearned premiums on unexpired policies, the profits of the company are returned to policy-holders in dividends. These dividends to policy-holders have averaged 20 per cent. per annum, and at the same time the company has increased its assets during the three years it has been in operation to over \$130,000.

Bankers Meet.

A convention of Southern and Western bankers is to be held in Atlanta on the 15th inst., which, it is understood, will be largely attended. One of the objects of the convention is to agitate the repeal of the 10 per cent. tax on the issue of currency by State banks. It is intended to make a strong protest at the present session of Congress. The convention will be held under the auspices of the Atlanta Clearing-House Association, and a committee consisting of prominent citizens of Atlanta has been appointed for the entertainment of the guests.

New Corporations

The Citizens' Bank has been organized at Cameron, W. Va., with \$25,000 capital, by M. L. Benedum and others.

The First National Loan Co. has been organized at St. Louis, Mo., with \$10,000 capital, by S. H. Smit and others.

John Pittman, Theodore Hoge and others have organized the Bank of Kirkwood at Kirkwood, Mo., with \$20,000 capital.

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A. A. Shuford and H. E. Menzies, of Hickory, N. C., are making arrangements to open another bank in Morganton, N. C. These gentlemen are interested in the First National Bank of Hickory.

The Henderson Trust Co. and the Ohio Valley Banking & Trust Co., of Henderson, Ky., have been consolidated, with a capital of \$180,500. The new corporation will assume the title of the Ohio Valley Banking & Trust Co. James R. Bennett has been elected president; P. J. Marrs, vice-president, and B. G. Witt, cashier.

New Securities.

The issue of \$50,000 in bonds made by the town of Aberdeen, Miss., has been sold to Benjamin F. Jenkins, of St. Louis, Mo., at par.

J. WM. MIDDENDORF.

Members Baltimore Stock Exchange.

WM. B. OLIVER.

MIDDENDORF, OLIVER & CO.

BANKERS AND BROKERS,
No. 213 E. German Street, [KEYSER BUILDING.] Baltimore, Md.
Stocks and Bonds Bought and Sold on Commission. Special attention given to Municipal and other Investment Loans. Dealers in Foreign Exchange. Drafts on Europe and Letters of Credit furnished.

SPERRY, JONES & CO.

DEALERS IN Southern Investment Securities,
410, 412, 414 Equitable Building, Baltimore, Md.
OUR FACILITIES ARE UNEXCELLED.

IF YOU WANT MONEY

Remember that I purchase all kinds of Endowment, Tontine and Distribution Insurance Policies at most liberal prices. Business done through banks. Give full particulars when writing.

E. A. COWLEY, No. 712 MERCHANTS NATIONAL BANK, BALTIMORE, MD.

The issue of \$15,000 in 6 per cent. bonds made by Grenada, Miss., has been sold to F. R. Fulton & Co., of Grand Forks, North Dakota.

The issue of \$240,000 worth of 5 per cent. bonds made by Bexar county, Texas, have been sold to Dietz, Denison & Pryor, of Cleveland, Ohio.

It is reported that the Kansas City, Pittsburg & Gulf Railroad Co. is offering at private sale bonds of the Port Arthur Ship Canal & Dock Co. The issue amounts to \$1,500,000, and bears 5 per cent. interest. This is partly guaranteed by the Missouri, Kansas & Texas Trust Co., and by a revenue of \$40,000 per year, which arises from car-shifting charges at the Port Arthur terminals of the Kansas City, Pittsburg & Gulf system.

Dividends and Interest.

The Georgia Brewing Association, of Savannah, has declared a dividend of \$3 per share.

The Indian River Pineapple Growers' Association, of Jensen, Fla., has declared a dividend of \$12.50 per share.

The New Orleans Brewing Association will pay interest due on its bonds at the Metropolitan Bank at New Orleans.

Financial Notes.

The People's Bank, recently organized at Livingston, Tenn., will occupy the building erected by the stockholders of the Bank of Livingston, which will be completed by January 1.

MARYLAND TRUST CO.

Corner South and German Sts.

BALTIMORE.

CAPITAL, - \$1,000,000.

A LEGAL DEPOSITORY FOR COURT AND TRUST FUNDS.

Acts as Financial Agent for States, Cities, Towns, Railroads and other Corporations. Transacts a general trust business. Lends money on approved security. Allows interest on special deposits. Acts as Trustee under Mortgages, Assignments and Deeds of Trust; as Agent for the Transfer or Registration of Stocks and Bonds, and for the payment of coupons, interest and dividends.

J. WILLCOX BROWN, PRESIDENT.

LLOYD L. JACKSON, FIRST VICE-PRES.

HENRY J. BOWDOIN, SECOND VICE-PRES.

J. BERNARD SCOTT, Secretary and Treasurer.

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J. Willcox Brown, Leopold Strouse, Wm. A. Marburg, Henry Walters, Basil B. Gordon, H. A. Parr, Lloyd L. Jackson, B. N. Baker, Fred. M. Colston, Andrew D. Jones, H. J. Bowdoin, James Bond, Joshua Levering, Alexander Brown, Frank Brown, Douglas H. Gordon, W. B. Brooks, Jr., Clayton C. Hall, W. H. Baldwin, J. D. Baker, Fredk. W. Wood, F. S. Bangs, F. M. Thieriot, John B. Garrett.

JOHN L. WILLIAMS & SONS,

BANKERS,

Dealers in RICHMOND, VA.

Southern Investment Securities, MUNICIPAL BONDS A SPECIALTY. Correspondence Invited.

TO CONTRACTORS.

If you have any municipal bonds or warrants, taken in payment for building waterworks, court or school houses, jails, etc., write us. Conditions being favorable, we can use them.

F. M. STAFFORD & CO.

Dealers in Southern Municipal Securities, Chattanooga, Tenn.

Mercantile Trust & Deposit Co.

OF BALTIMORE.

Paid-up Capital, \$1,000,000.

Surplus, \$1,000,000.

DEPOSITS RECEIVED

On which interest is allowed, governed by current rates obtainable.

TRUSTEES AND ADMINISTRATORS.

This company is a *Legal Depository* for funds in the hands of Trustees or Administrators, and allows interest on same pending distribution.

Authorized to act as Executor, Administrator, Guardian, Receiver or Trustee.

ACTS as Trustee of Mortgages of Corporations and accepts Transfer Agency and Registry of Stocks.

Safe Deposit Boxes for Rent.

Vaults supplied for Storage of Silver Chests, etc.

JOHN GILL, of R., President.

THE BIG UNION MINING CO.

Owns and is now opening up rich gold mines in the famous Leadville Gold Belt of Colorado. Its mines lie on the same contact vein with the most noted of the great Leadville mines. One of these, the "Little Johnny," is the greatest gold mine in Colorado and perhaps in the world. Its present output is about \$300,000 per month, and it is now paying monthly dividends of \$100,000 to \$200,000. The officers and stockholders of the company are not speculators but are well-known conservative business men. Here are some of them:

OFFICERS:

R. E. LYON, President.

STEPHEN H. EMMENS, Vice-President.

H. B. TILDEN, Treasurer.

DIRECTORS:

B. L. Duke, the great tobacco manufacturer of Durham, N. C.

W. T. O'Brien, of the American Tobacco Co., Durham, N. C.

Stephen H. Emmens, Pres. of the Mining and Industrial Exchange, New York City.

R. E. Lyon, of Baltimore, Md.

L. D. Heartt, Cashier First National Bank, Durham, N. C.

H. B. Tilden, of Baltimore, Md.

The stock of this company has been listed on the New York Mining and Industrial Exchange. The office of the company is at 849 Equitable Building, Baltimore, Md.

The treasury stock now being offered affords an investment opportunity that is well worth looking into.

The company does not care to sell in small lots, but will be glad to confer with investors with reference to the purchase of large blocks. The officers feel confident that the facts to be presented concerning the company's property will appeal to the best informed and most conservative and cautious investor.

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Anderson Water, Light & Power Co. 24	Climax Mfg. Co. 13	Hendrick Mfg. Co., Limited. *	New Columbus Bridge Co. 33	Southern Expanded Metal Co. 33	
Andrews, A. H., Co. *	Clonbrook Steam Boiler Co. 15	Hickman, Williams & Co. 26	N. J. Car Spring & Rubber Co. 11	Southern Fdy. & Mch. Works. 24	
Andrews, Perry. 6	Coburn Trolley Track Mfg. Co. 9	Hiertz, Theo., & Son. 13	Newburg Ice Mch. & Engine Co. 39	Southern Iron & Equipment Co. 26	
Angle Lamp Co. 6	Cohoes Iron Fdy. & Mch. Co. 35	Hirsch, L. K. 26	Newport News Shipbuilding & Dry	Southern Iron Works. 13	
Apollo Iron & Steel Co. 22	Columbia Water Power Co. 21	Holmes, E. B., Machinery Co. 28	Dock Co. 4	Southern Log Cart & Supply Co. 23	
Armitage Mfg. Co. 33	Columbus Machine Co. 9, 23	Holmes Fibre Graphite Mfg. Co. 28	New Process Rawhide Co. 9	Southern Railway Co. 1	
Atkins, E. C., & Co. 29	Commercial Electric Co. 45	Holt, S. L., & Co. 25	New York Equipment Co. 26	Spears', Alden, Sons & Co. 32	
Atlanta Terra Cotta Co. 43	Commercial Wood & Cement Co. 6	Hoopes & Townsend. 32	New York Fireproof Covering Co. 4	Springfield Gas Engine Co. 15	
Austin Separator Co. 17	Consolidated Steel & Wire Co. 32	Houston, Levi, Co. 28	Niagara Stamping & Tool Co. *	Sprout, Waldron & Co. 31	
Austin White Lime Co. 6	Contractors' Plant Mfg. Co., Ltd. 9	Howard, B. C. 6	Nicholson File Co. 46	Stafford, F. M., & Co. 317	
B	Cordesman Machine Co. 29	Humphries Mfg. Co., The. 43	Nordyke & Marmon Co. 23	Standard Coal Co. 23	
B.cock & Wilcox Co. *	Cordesman, Meyer & Co. 29	Huther Bros. *	Standard Mill Supply Co. 36	Standard Oil Co. 36	
Baeder, Adamson & Co. 8	Cornman Co. 25	Hutton Engineering Co. 6	Standard Paint Co. 33	Standard Tool Co. 46	
Bailey-Lebby Co. 31	Cortright Metal Roofing Co. 33	I	North American Metaline Co. 9	Stanley Electric Mfg. Co. 45	
Bailey, John T., & Co. 22	Covert Mfg. Co. 38	Illinois Central Railroad. 1	Northern Pacific & Alaska Mining,	Start, B. F., & Co. 31	
Baird, U., Machinery Co. 12	Cowley, E. A. 317	India Alkali Works. 36	Transportation & Trading Co. 27	Stebbins, Wallace. 15	
aldwin Locomotive Works. 13	Cox, Justice, Jr. 23	Ingersoll-Sergeant Drill Co. 22	Norton Emery Wheel Co. 13	Steel Rail Supply Co. 26	
Ball Engine Co. 14	Crompton & Knowles Loom Wrks. 35	International Corres. Schools. 6	Nye & Tredick. 36	Sterling Emery Wheel Mfg. Co. 28	
Baltimore, Chesapeake & Richmond	Cronk Hanger Co. *	J	Ober Lathe Co. 28	Stevens', H., Sons Co. 46	
Steamboat Co. 39	Crosby Steam Gage & Valve Co. 16	Jackson Mfg. Co. 38	Otto Gas Engine Works. *	Stewart, Jas. & Co. 6	
Baltimore Engraving Co. 1	Cruickshank, D. B. 25	Jeansville Iron Works Co. 40	P	Stiles & Fladd Press Co. 8	
Baltimore & Ohio R. R. 1	Curtis & Marble Machine Co. 35	Jeffrey Mfg. Co. 30	Pancoast, Henry B., & Co. 43	Stillwell-Bierce & Smith-Valle	
Baltimore Storage & Light. Co. 39	Cutler Mfg. Co. 33	Jenkins Bros. 46	Patitz, A. M. 6	Co. 40, 41, 43	
Barber Asphalt Paving Co. 23	Cypress Lumber Co. *	Jewell Belting Co. 11	Paxson, J. W., & Co. 23	Stow Flexible Shaft Co., Ltd. 9	
Barnes Mfg. Co. 40	D	K	Peacock, George. 26	Taylor, A. W., Land & Lumber Co. 25	
Barnes, W. F. & John, Co. 8	Dallett & Co. 26	Kansas City, Pittsburg & Gulf R. R. 39	Pechin, T. E. 10	Taylor, J. H. 26	
Barnett, G. & H., Co. 46	Davis-Farrar Co. 40	Keeler, E., Co. 9	Peck-Hammond Co. 23	Thompson, J., & Sons, Mfg. Co. 15	
Bartlett, C. C., & Co. 46	Davis Foundry and Mch. Works. *	Kelly, O. S., Co., The. 31	Penberthy Injector Co. 46	Toledo Machine & Tool Co. 32	
Bates's, James, Sons. 8, 24	Davis, G. M., & Son. *	Kelly & Jones Co. 17	Perkins Mfg. Co. 26	Toomey, Frank. 25	
Bay Line. 39	Davis, Kelly & Co. 26	Kendrick Valve & Washer Co. 9	Pettee Machine Works. 35, 37	Torrey, M. S. 24	
Beach, H. L. *	Dean Bros. Steam Pump Works. 40	Keystone Crusher & Roller Co. 31	Philadelphia Bourse. 9	Tower & Wallace. 6	
Beaty Lumber Co. 24	De Loach Mill Mfg. Co. 29	Keystone Drop Forge Co. 8	Philadelphia Eng. Works, Ltd. *	Trenton Iron Co. 22	
Beaver Tin Plate Co. 32	Dempwolf, C. H., & Co. 30	Kilburn & Jacobs Mfg. Co. 2	Phila. Machine Screw Works. 43	Trevor Mfg. Co. 19	
Beckley, A. J., & Co. 31	Dietz, Schumacher & Boye. 12	Kilburn, Lincoln & Co. 37	Philadelphia Steel Roofing Co. 33	Triumph Electric Co. 44	
Benjamin Iron & Steel Co. 26	Dilston, Henry, & Sons. *	Knox, Henry E., Jr. 6	Piqua Copying Machine Co. 1	Tudor Boiler Mfg. Co. 17	
Benjamin, O. P., Mfg. Co. 43	Dixon, Jos., Crucible Co. 46	L	Pittsburg Locomotive Works. *	U	
Bennett, Box 2518. 24	Dopp, H. Wm., & Son. 38	La Follette Land & Improv't Co. 25	Pittsburgh Plate Glass Co. 33	Union Drawn Steel Co. 28	
Berryman, James. 15	Dow Wire Works Co. 32	Lagonda Mfg. Co. 39	Pittsburg Tool Steel Co. 22	Union Electric Co. 45	
Bertsch & Co. *	Draper Co. 22, 34	Lambert Gas & Gasoline Eng. Co. 15	Playford Stoker Co. 16	Union Iron Works Co. 45	
Besly, Chas. H., & Co. 46	Draper Machine Tool Co. 12	Lambert Hoisting Engine Co. 4	P. O. Box L. 24	United Electric Improvement Co. 45	
Bethlehem Iron Co. *	Dufur & Co. 32	Lane Manufacturing Co. 28	Pomona Terra Cotta Co. 43	U. S. Sanitary Co. 1	
Big Four Route. 1	Dunbar, R., & Son. 31	Lang, S. Logan. 24	Pope Mfg. Co. 39	Valdosta Foundry & Machine Co. 22	
Big Union Mining Co. 317	Dunning, W. D. 23	Lathbury, Spackman & Bach. 6	Porter, H. K., & Co. 13	Vaile & Murdoch Iron Works. 15	
Bingham & Co. 46	E	Laughlin Mfg. Co. 10	Poulterer & Co. 25, 26	Valley Iron Works. 9	
Bird, Wm. M., & Co. 6	Easton Burnham Machine Co. 35	Lee-Penberthy Injector Co. 16	Powhatan Clay Mfg. Co. 23	Vanduzen Co., The E. W. 41	
Birmingham Boiler Works. 16	Eccles, S., Jr. 1	Leffel, James, & Co. 14, 41	Pratt, N. P., Laboratory. 6	Van Noorden, E., & Co. 6	
Birmingham Mach. & Fdry. Co. 25	Eco Magneto Clock Co. *	Lehigh Valley Brass Works. 17	Pratt & Whitney Co. 12	Van Wie, Irwin. 40	
Bliss Co., E. W. 12	Eddy Electric Co. 44	Leisenring Mfg. Co. 17	Pratt & Weir Chuck Co. 39	Vitrified Wheel Co. 28	
Block-Pollak Iron Co. 26	Electrical Engin'ring & Supply Co. 45	Leonard, Foley & Co. 6	Price & Co. 26	W	
Boomer & Boschart Press Co. 23	Empire Paint & Roofing Co. *	Lewis, H. F., & Co., Ltd. 46	Priestman & Co. 15	Wais & Roos Punch & Shear Co. 25	
Boston Belting Co. 11	Epping-Carpenter Co. 13	L. H. C. 24	Provident Machine Co. 35	Walker & Elliott. 24	
Bowdon, R. E. 6	Etting, Edward J. 25	Lidgerwood Manufacturing Co. 9	Pulsometer Steam Pump Co. 40	Warren Chemical & Mfg. Co. 32	
Bowers, A. L. 24	Eureka Fire Hose Co. 10	Lightning Wage Calculator Co. 22	Q	Washington Slate Co. 1	
Bowes, F. K. 25	Everson, B. M. 25	Link-Belt Engineering Co. 30	Queen City Printing Ink Co. 1	Watkins & Hardaway. 6	
Bradford Detective Agency. 23	Exchange Banking & Trust Co. 23	Lobdell Car Wheel Co. 8	Queen City Supply Co. 15	Watson, Benjamin. 26	
Bradford Mill Co. 12	F	Lombard Iron Wks. & Supply Co. 9	R	Webster, Warren, & Co. 16	
Bradley Pulverizer Co. 31	Farquhar, A. B., Co., Limited. 28	Lorain Foundry Co. 13	Rand Drill Co. 10	Weir Frog Co. 43	
Bradstreet Company. 39	Fay, J. A., & Egan Co. 29	Lowell Machine Shop. 36	Rawson Electric Co. 45	West Mfg. Co. 30	
Branson Machine Co. 36	Fay Manilla Roofing Co. 35	Lowell Textile School. *	Raymond & Gray. *	Western Electric Co. 35	
Brooks, T. H., & Co. 32	Fidelity & Deposit Co. of Md. 23	Ludlow-Saylor Wire Co. 32	Record Printing House. 1	Western Electrical Supply Co. 43	
Broomell, Schmidt & Co. 16	Fifield Tool Co. 12	Ludlow Valve Mfg. Co. 43	Reed, F. E., Co. 12	Western Maryland Railroad. 1	
Brown, A. & F. 28	Fitz-Hugh & Co. 26	Lunkenheimer Co. 46	Reliance Gauge Co. 15	Westinghouse Air Brake Co., The. 2	
Brown, A. Hoisting & Con. Mch. Co. 9	Fogg, A. 26	Lyon, A. I. *	Remington Machine Co. *	Westinghouse Elec. & Mfg. Co. 45	
Brown, Lucius P. 6	Foos Gas Engine Co. 15	Main Belting Co. 11	Repauno Chemical Co. 10	Westinghouse Machine Co. 17, 25	
Buckeye Engine Co. 14	Forbes Mfg. Co. *	Makepeace, C. R., & Co. 6	Reuter & Mallory. 25	West Pascagoula Creosote Works. 26	
Buckeye Iron and Brass Works. 37	Forbush, G. H., Press Co. 36	Manistee Iron Works. 40	Rhoads, J. E., & Sons. 10	Wetherill, Robt., & Co. 16	
Buffalo Forge Co. 46	Byers, Jno. F., Machine Co. 9	Marion Steam Shovel Co. 2	Richmond Loco. & Mch. Wks. 13	Whaley, W. B. Smith, & Co. 6	
Bureau of Freight and Transportation, Charleston, S. C. 22	Fuel Economizer Co. 17	Martin, Hy., Brick Mch. Mfg. Co. 38	Robbins & Myers Co. 25	Wheeling & Lake Erie Railway. 1	
Burgess, Chas. S. 24	Fulton, John. 6	Maryland Mfg. & Construction Co. 43	Robertson, Jas., Mfg. Co. 30	White, L. & I. J., Co. *	
Burr Manufacturing Co. 8	Fulton Steam Boiler Wks. & Fdry. *	Maryland Trust Co. 317	Robertson, J. M., & Co. 32	Whitinsville Spinning Ring Co. 36	